THE MARINE RECORD.

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To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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TRAFFIC ON THE SUEZ CANAL.

A parliamentary return just issued relating to the traffic through the Suez Canal states that the net tonnage for the past year shows an increase of 380,107 tons as compared with that of 1893, and of 327,146 as compared with that of 1892. The amount of dues has risen from 70,667,361 francs in 1893 to 73,776,827 francs in 1894, being an increase of 3,109,466 francs. The number of vessels which passed through the canal was 3,559 in 1892, 3,341 in 1893, and 3,352 in 1894, of which 2,581 in 1892, 2,405 in 1893, and 2,386 in 1894 carried the British flag. These figures represent often frequent voyages on on the part of the same vessel. The actual number of vessels was 1,011, of which 185 (or 18.3) per cent used the canal for the first time. The percentage of British flags passing through the Suez Canal in 1894 varies but little from that of 1893, 71.2 per cent carrying the British flag as against 72 per cent in 1893. The percentage of German, French, Dutch, Norwegian and Italian vessels have also slightly declined.

A SUBMARINE SENTRY.

The greater number of Japanese war vessels are lighted by electricity, and the skillful manipulation of their search lights has excited favorable comment. Owing to the war, many of the lights and beacons were extinguished on both the coasts of Japan and China, and false lights substituted, so that navigation had become perilous. The "submarine sentry" has rendered efficient aid in preventing disasters. This recently invented electrical instrument gives warning to a vessel going ten knots per hour when the depth of water falls below twenty fathoms, so that the usual soundings may be taken.

NOTICE TO MARINERS.

AHNAPEE PIERHEAD RANGE, REAR LIGHT.—Notice is hereby given that, on or about June 5, 1895, the intensity of the light at this station, near the outer end of the N. pier, harbor of Ahnapee, will be increased by changing the illuminating apparatus from a lens lantern to a fifth order lens and light.

No other change in characteristic will be made.

By order of the Light-House Board.

JOHN G. WALKER,
Rear-Admiral U. S. Navy, Chairman.

Office of the Light-House Board, Washington, D. C., May 23, 1895.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—NEW YORK.

BUFFALO BREAKWATER (N. END) LIGHT STATION.—Notice is hereby given that on or about June 1, 1895, the characteristic of the 10-inch steam whistle at this station, behind the N. end of the breakwater, S. side of the approach to Buffalo harbor, Lake Erie, will be changed to sound, during thick or foggy weather, or when the entrance to the harbor is obscured by smoke, blasts of 3 seconds' duration, separated by silent intervals of 57 seconds, thus:

Blast	Silent interval	Blast	Silent interval
3 sec.	57 sec.	3 sec.	57 sec.

As soon as practicable, and without further notice, a sounding board and reflector will be placed on the fog signal house to throw the sound of the signal westward in the direction of approaching vessels, and to reduce the sound in the city.

STURGEON BAY CANAL.—Capt. Palfrey, assistant to Supt. Dier, of the Sturgeon Bay Canal, has just finished an elaborate drawing of the canal, which gives the depth of water, the width of the channel, and all necessary incidental information for pilots. The drawing also shows the improvements at the north end of the cut. Beginning on the east side where the revetment work ceases is a place 30 feet in width and several hundred in length. This it is proposed to excavate during the ensuing season, and which is the first movement toward widening this important waterway. As soon as the work on the east side shall have been completed a beginning is to be made on the south side and the enlargement carried forward as fast as appropriations therefor are made by congress.

The following buoys have been placed in Canadian waters on the east shore of Lake Superior by the Canadian government, and will hereafter be maintained in position during the season of navigation:

A red, wooden, spar buoy in two fathoms of water at the edge of the shoal about one mile south of Gros Cap, opposite Iroquois Point. This shoal is about half a mile long with two and a half feet of water over it.

A red, wooden, spar buoy, moored in two and a half fathoms of water on the northwest edge of the shoal between Parisian and Sandy Islands.

A red, wooden, spar buoy, moored in two fathoms of water on the south extremity of the shoal off Corbay Point.

A steel, bell buoy, red, moored in five fathoms of water off the southwest edge of Pancake Shoal. Pancake Shoal has only four to six feet of water over it and is of considerable extent.

A red, wooden, spar buoy, moored in two and a half fathoms of water on the west edge of a shoal about four miles north of Coppermine Point.

A red, wooden, spar buoy, moored in two and a half fathoms of water on the west edge of the shoal between Point Aux Mines and Montreal Island.

ERIE CANAL AND RAILROADS.

Referring to the low rates for grain, from Buffalo to New York, a railroad official is quoted as saying: "The condition seems to be that there has been a scarcity of east-bound freight offering, and it means keen competition to secure what is obtainable. This season is unlike previous seasons in many ways. Heretofore there have been large quantities of sack flour, barrel flour, mill stuff of various kinds, lard and other kinds of packed goods stored at the lake ports waiting for the opening of lake navigation. This season, however, these goods have not been stored. This is a result chiefly of the rate-cutting by the railroads; and the general scramble for ready money. Consequently the railroads find themselves without their usual spring east-bound movement from Buffalo. They are bound to bring their cars east for west-bound business, and grain at 3 cents per bushel can be brought from Buffalo to New York at no greater expense than empty cars. Consequently, if we bring grain at 3 cents and could not get it from the canal at a higher rate, that 3 cents is just so much profit, inasmuch as it means just that much less loss. We can put a locomotive on a train of 35 cars and haul it from Buffalo to New York, and it makes no difference whether the cars are loaded or empty. In fact we would rather bring them loaded, for the cars come safer. This being the case the railroads are just now getting all the grain they can—and they are not getting much—at the best rates that they can secure; but they are getting, it would seem, the great part of the grain that is obtainable."

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

A few A 2 boats are being placed for Kingston, owing to the scarcity of that class of tonnage, but none are getting Buffalo cargoes.

The steamer Mabel Bradshaw has been shut out of the Chicago-Holland route by the opposition line. She will begin running next Sunday between Chicago and Pentwater.

The A 2 boats are practically forced out of the American grain trade by the new cargo insurance rates, as the shippers refuse to pay the extra insurance on this class of tonnage, unless it is deducted from the freight.

The steamer Thomas Davidson, which was damaged $2,000 by collision with the Indiana street bridge at Chicago, has been repairing at Miller Bros. shipyard. These repairs comprise stringers and carlings abreast the boiler house, new stringers across in front of the boiler house, new stanchions and repairs to the hurricane deck. The municipality of Chicago will probably be asked to pay the repair bill.

The sale of the wrecked steamer, J. L. Hurd at Harbor Springs, which was set for last Thursday, has been indefinitely postponed. C. W. Elphicke thinks the underwriters interested will have the craft sold by a United States marshall under libel proceedings by the wrecking tug Favorite, to recover a claim for services rendered, which will give the purchaser clear title. The sale will occur about June 15.

The long list of heavy losses on metal tonnage has had a tendency to lengthen the faces of the underwriters, who have paid nearly double the losses on metal tonnage that they did last year when the season opened much earlier. Some of the large fleets were covered this spring as low as 2⅝ per cent, and none paid more than 2¾. One of the last heavy repair bills is that of the steamer Manola, at the South Chicago Dock, her bill is about $10,000, fifteen plates having been broken.

Chicago Harbor, No. 33, of the American Association of masters and pilots of steam vesels, is increasing in membership, forty-five members having joined it at this port. The association has harbors all around the seaboard and at several lake ports and a membership of 1,650. There is an insurance of $1,000 payable to the heirs of any member in good standing at the time of his death, towards the payment of which each member is called upon to contribute the small sum of 25 cents. Members of Chicago harbor No. 33 hold their meetings weekly on Thursday afternoons, at their hall over the Grand Hotel, corner Kinzie and Wells streets. Licensed masters and pilots wishing to join the association can obtain all information required, by calling on A. C. Johnson, captain's clerk, 230 South Water street.

The Lincoln Park commissioners are still agitating the question of a pier 1,000 feet into the lakes opposite the Children's Sanitarium for the landing of pleasure craft. Secretary George Weber says an appropriation of $15,000 from North Chicago and another of $5,000 from the town of Lake View will more than build the pier. The Sanitarium would then be removed to the end of the pier, away from the smoke of the boats, which would tie up where the Sanitarium stands at present. A chain fence will be placed along each side of the pier, which will be used as a promenade, with a double row of seats in the middle. It is thought that the sand will soon wash in on the north side of the pier to form an area of new ground, which will be a beach suitable for the free bath houses which are so much desired.

A lighterage system between Chicago Harbor and the Calumet River will soon be established, greatly to the advantage of manufacturing concerns on the Calumet. It has been the fixed policy on the steamers belonging to the lake and rail lines not to go outside of Chicago River for freight. The growth of the grain business on the Calumet compelled a change this spring, and of late line steamers have been have been frequently in South Chicago. Although daily applications were received for steamers to call at docks along the Calumet for general merchandise by every one of the lines, the old rule has been maintained in that regard. The officials have demanded shipments of 500 tons before they send their steamers up the Calumet. To overcome this handicap a couple of small steamers have been chartered to bring the freight from South Chicago to the docks of the lines along the Chicago River and take back incoming freight.

The office of publication of Beeson's Inland Marine Directory has been removed from Detroit to Chicago, and its publisher was found Monday pleasantly located at his new office, 308 Royal Insurance Building. The business of publishing a directory is one that confines its complier very closely for several months of the year, and Mr. Beeson has evidently in fitting up his office, realized the necessity of having handy surroundings, as as well as everything that years of experience have suggested as possible aids in the work. Among these latter perhaps the most prominent is a large fireproof vault, especially fitted for the proper storage of electrotypes, blanks, exchange publications and many other things which a publisher could not afford to lose, and which at the same time must be accessible at all times. All furniture has been made to harmonize, and though not of an extravagant nature, they are very pleasing to the eye. The only thing in the way of ornament is the large oil painting of a sailor lad climbing a ship's rigging which was painted by Howard Sprague, and from which the frontispiece of Mr. Beeson's book in 1891 was taken. (This picture some four feet wide by six high hangs above the mantel), and on the opposite wall is a finely executed, life-size picture of the publisher. Owing to his recent move Mr. Beeson is particularly busy with correspondence and the distribution of the work, but has time to spare for all who may care to and can find it convenient to call, either on business or socially.

DETROIT, MICH.

Special Correspondence to The Marine Record.

The steamer Kalkaska had her stern bearings lined up, and the A. A. Parker got a new wheel at Clark's dry dock.

The steamer Carmona, which will run with the Cambria between Windsor and the Sault, has arrived at Windsor. She will start on her first trip Friday.

The steamer Sakie Shephard, which was raised after foundering near Turtle Island, has been brought to this port by the tug Bessie. She was taken to Oades' shipyard for the necessary repairs.

The steamer E. M. Peck struck Spectacle reef several days ago, When she was placed in dry dock here it was found that her wooden sheathing had protected the steel bottom, which was undamaged. She left the dock after getting a new wheel.

As soon as word was received that the large steel steamer Alva was ashore on the North Manitou, the powerful wrecking tug Favorite, owned and managed by Parker & Millen, was dispatched to her assistance. It is safe to say that the Alva will come off the beach in a hurry when Capt. Mart Swain gets alongside of her with his wrecking outfit.

F. W. Wheeler & Co., West Bay City, intend to enter the lists again for the construction of wooden tonnage. This addition to the iron and steel plant in the shipyard will permit of special and composite built vessels being bid for as occasion demands. The reputation of the Wheeler's stood high in the past for building sound, wholesome wooden vessels, and the new equipment will allow them to discount even previous work.

COLLINGWOOD, ONT.

Special Correspondence to The Marine Record.

The steam launch Athena burned at Hamilton last week.

About 50,000 salmon trout fry were deposited in the bay at Barrie a few days ago.

Wm. Hacking, a young man, had his leg crushed by the Alberta at the dock in Owen Sound Saturday morning. He was taken to the hospital where the limb was amputated.

The deputation to Ottawa in the interest of Collingwood harbor returned from the capital very much encouraged. They report that the minister promised to consider the matter, and assured the delegates that the harbor would be made a proper depth and that the work would be commenced this season.

Mr. P. Doherty has just completed and delivered an auxiliary sloop yacht to Rev. Father Picand for use by the Jesuit missionaries at Wikewemikong, who travel many miles during the summer months. The sloop has an auxiliary, a four horse-power gasoline engine, built at Grand Rapids, Mich. The engine occupies about three square feet of the deck and stands about three feet high. Two galvanized iron tanks to hold the gasoline are conveniently located under the deck, while under the waterway the storage battery is placed. This battery is used to ignite the gasoline, thereby manufacturing the power. A peculiarity of the engine is that it does not reverse, although the wheel can be made to run either way by the use of a lever. The wheel, which is bronze, has only two flanges which are so arranged as to be feathered while sailing.

The government survey steamer Bayfield, commanded by Capt. McGregor, is engaged in the survey of Lake Erie, the work being under the instruction of commander Stewart, R. N., who has recently been engaged surveying the Georgian Bay. He reports that the survey of this bay is now practically completed, the only portion that has not been fully surveyed being about 1,200 square miles in the middle of the bay ; and this has been crossed a number of times without any shoals having been found. The work has occupied eleven seasons and the cost has been $215,000, the work being much greater in proportion to the area covered than that of any other portion of the lake, owing to the immense number of islands and intricate channels, bays, etc. Thoroughly reliable charts of the entire bay are now available to navigators.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

The steambarge Norseman has been getting a new wheel at Mills' dry dock.

Hand & Johnson's new tug, Cascade will be ready for work in about ten days.

The steambarge John E. Hall wet 200 sacks of plaster, by reason of stress of weather.

The steamer Majestic, with wheat from Chicago, weighed out 200 bushels short at the Coatsworth elevator.

Thomas Whippell was almost fatally burned last Thursday by the bursting of a steam pipe on the tug Albany.

The repairs to the steamer North Wind are making good progress at the Union Dry Dock. Her bill will be about $10,000.

Hurd & Hauenstein contemplate building a steel lumber vessel to tow behind the Wotaw. She will, of course, be a large carrier.

A sounding board is to be placed on the cityward side of the fog whistle at once. The whistle will then be changed to sound only once instead of twice a minute.

The steamer Chemung is in the Union Dry Dock. Twenty plates will have to come off as a result of her experience at Bar Point. Mr. Gaskin estimates her damage at $13,000.

The Crystal beach steamers will be officered this season as follows: Pearl, captain, Alexander Walters; engineer, Nicholas Larson; Gazelle, captain, George Swift; engineer, Henry Bullard.

The new steel steamer Chili, built by the Cleveland Ship Building Co. for the Kelderhouse syndicate, reached Buffalo in good style, Sunday morning. She worked to perfection all the way down from Cleveland.

Congressman Harman of Oregon, is to start on a trip up the lakes next Friday. Members of the Lake Carriers' Association expect to show him a good time all the way up. He will probably embark on the China.

It cost $1,000 for temporary repairs to the copper laden steamer, Linden, so she could come to Buffalo, and $5,000 more will be necessary for permanent repairs here. The Linden's first trip proves the reverse of lucrative.

At the Union dry dock the steambarge St. Louis is about ready for sea, having received a thorough rebuild, costing about $7,000. The Grand Traverse got a new wheel and rudder, and the excursion steamer Gazelle, a new stern post.

Edw. Gaskin, as owner of the schooner Ida Keith has brought suit in the U. S. court against Douglas, White & Co., of Albany, for the recovery of $1,213.87, as the result of a recent collision in Niagara River. The Albany dealers acted on the general average bond, and when the loss was adjusted they refused, it is said, to pay the damages agreed upon.

W. J. Hingston & Son's yard is full of business. A few days ago this firm completed the tug Frank L. Pabst, for Carrol Bros. See is 68 feet long by 17 feet beam and 8 feet depth. She is fitted with a fore and aft compound engine, 12 and 25 by 20 inches. The Pabst's

boiler, 6 feet, 10 inches by 11 feet, 8 inches, was built by M. Riter and is tested to 150 pounds. Hingston & Son are also building a tug for O. W. Cheney, 80 feet long by 17 feet beam. She will have 12 staterooms, sitting and dining rooms and a galley. A canal tug for Killein & Fox, 42 by 11 by 5½ feet with high pressure engine 9 by 10 inches and and boiler 3½ by 7 feet; and a fishing tug 75 by 15 by 6 feet for Captain Harvey Boyd of Erie.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

Capt. Harry Buzzard has left the lakes and has entered the photographic business.

The Sparta and Havana are receiving new boilers from the Scofield Boiler Works.

The barge Bahama has been undergoing an overhauling in the Wolverine dry dock.

Capt. George Barnes has bought the little schooner Dauntless, which carries 150,000 feet of lumber.

Marine men are still agitating the question of a life-saving station at Fort Gratiot, where the Shupe disaster occurred a year ago.

The barge Alaska has been converted into a steamer and she is now nearly ready for business. Capt. Willlam Curtis is in charge of her.

The new tug building by the Jenks Ship Building Co. for B. B. Inman is about ready to launch. They expect to slide her into the water on Saturday.

Capt. Gabriel Knight, who was mate of the schooner John O'Neill, has been sent to the Marine Hospital here. His foot was badly erushed by a lump of coal falling on it.

The steamer Helena rubbed her bottom to the eastward of the Cram dredge at work in the 21-foot channel at the foot of Lake Huron. It is not known whether she sustained any damage, as she went right on.

The shipyard and drydock at Dunford & Alverson's is kept very busy these times. The steamer Andrew Jackson and the barge Dashing Wave are having a general overhauling and the schooner John O'Neill a new foremast.

Ed J. Kendall, the marine reporter, has been appointed special weather signal agent at this port and will deliver to all up-bound steamers a copy of the weather reports. If they should not speak the small boat on the river three long and three short whistles will be blown, and the boat will call on them with weather reports.

John S. Nesbit has disposed of the tug Jessie to the Sault Ste. Marie Fibre Co., Ont., for $5,500. The Fibre Co. have also purchased from Mr. Nesbit the scow Transfer and are having her repaired here. The Fibre Co. is an association of capitalists who have acquired the town water power at Sault Ste. Marie and are building large pulp works on the power at an estimated outlay of $15,500,000. They will use the Jessie and Transfer in carrying pulp wood to the Sault for the use of their factory.

SANDUSKY, O.

Special Correspondence to The Marine Record.

The steamer T. D. Stimson made a rather unusual charter late last week. She came to this port light for a cargo of lumber, 150,000 feet of Georgia pine and poplar for Bay Mills, Mich.

A party of Big Four railroad officials were in the city last Thursday on a tour of inspection. The party comprised superintendent William Gibson, chief engineer J. C. Nelson, master mechanic J. A. Keegan, roadmaster Thomas Griffin, Dr. L. E. Russell, company surgeon, and Thomas Downing, general foreman of the Delaware shops. They decided to recommend the expenditure of considerable money for dock improvement at this port. Also dredging the slips to a depth conforming to the water in the outer harbor. The company expect to handle a good deal of coal and ore here during the latter part of the season.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

A large party of Democratic congressmen are booked for a trip up the lakes, leaving Buffalo in August or September. They will be under the escort of George Hazzard, of Tacoma, secretary of the Democratic state committee of Washington.

It is stated on the authority of an official of the company that the Omaha road will within a fortnight let the contract for two large elevators, with a combined capacity of 3,000,000 bushels. It has been known for some time that the company has had such an intention, but the news that the hopes are so soon to be realized is welcome here.

Work on the Standard Oil Co.'s oil tank barges is advancing rapidly. The steel masts of the No. 2 were stepped this week. The tanks will be 90 feet in length and 30 feet in diameter with a capacity of 30,000 barrels each. They will be entirely of steel, and it will require 60 days to build them. Riter & Conley, of Pittsburg, have the contract, and M. J. Lee, of the same city, will superintend the work.

ALPENA, MICH.

Special Correspondence to The Marine Record.

Saginaw 'longshoremen have reduced the rate for loading and unloading vessels to 35 cents an hour, which now corresponds with the Bay City rates.

Gilchrist & Fletcher bought from the underwriters the schooner J. B. Kitchen, which was wrecked near Middle Island, for $500. When she ran on the reef she succeeded in getting over and sank in the shallow water inside She was loaded with plaster of paris in bags, It became rock as soon as saturated, and was very hard to remove. The Kitchen will carry about 350,000 feet of lumber. She was finally brought into port, and will be repaired.

Capt James Davidson will launch the wooden steamers Rappahanock and Sacramento June 15. Each is 330 feet long by 43 feet beam. Capt. Davidson says he will employ only one high-salaried man in the new steel yard to oversee the boats, and to design them on plans furnished by the captain himself. Capt. Davidson is quoted as saying that the wooden boats require more skillful workmanship and more practical knowledge than do steel craft.

Last Wednesday night, as the schooner Mary D. Ayer was winding in the river, the tow line fouled, and the Ayer ran into the abutment of the Second street bridge. She carried away her jibboon, broke her bowsprit, and wrecked the abutment with its railways and bridge gates The schooners cathead and forechains fouled in the bridge piling and it was some time before she was got clear, The damage to the schooner was about $300, and that to the bridge probably a little more.

CLEVELAND. O.

Special Correspondence to The Marine Record.

William Baxter, formerly mate of the German, has been promoted to master vice Capt. F. W. Stenton, resigned.

The Detroit & Cleveland as well as the Cleveland & Buffalo passenger line boats are now in daily service, Sundays included.

Col. Jared A. Smith, Corps of Engineers U. S. Army, secured last Saturday the title to a piece of land on the south end of Put-in-Bay Island, suitable for the erection of a light-house.

C. R. Jones, of this city, and Capt. George McCullagh, of Detroit, are the purchasers of the steamer Rhoda Emily from the Escanaba & Lake Michigan Transportation Co. Consideration, $22,250.

The Dominion built some small ram gunboats at Owen Sound, Ont., and called them fishery cruisers. The United States ought now to build a few vessels of the same type and call them revenue cutters for lake service.

The steamer R. J. Stewart will be placed on the Cleveland-Port Stanley route this summer, leaving here Monday, Wednesday and Friday nights. Mr. H. F. Weekes will manage the line, and as it was a popular sail last season, it is likely to be a paying line this year.

Capt. Frank Stenton, of the steamer German, and Capt. J. Dunn, of the Corona, have resigned. Capt. Stephen Murphy, formerly of the Cambria, will take charge of the Corona and Martin Johnson, first mate of the Corsica, will be placed in charge of the Cambria.

With a fairly good demand for tonnage and freights steadily advancing, there has been more satisfaction in the past week's business than at any other time so far this season. It now seems possible, in spite of the low draft of water already experienced, for vessel owners to begin to pull out on the right side of the ledger.

On Monday last, seven cargoes of ore were received at this port while Ashtabula captured fifteen. It is not all owing to the poor facilities offered at this port for handling and discharging large steamers that Ashtabula leads as an ore receiving port, her railroad connection is probably the greatest inducement for consignees to take delivery there.

Complaint is made about the fog signal on the S. Manitou Island not being heard recently in thick weather. It has been suggested that the Light House Board should detail an officer of the service to make a special investigation relative to the action of sound at several of the stations and this might result in screening, altering or placing the fog whistles to better advantage.

Hon. Binger Hermann, of Oregon, a member of the Congressional river and harbor committee, is expected to arrive at this port from Buffalo, Friday, on the steamer China. A committee of the Lake Carriers' Association, consisting of Capt. J. C. Gilchrist, Capt. Geo. P. McKay, James Corrigan, and Harvey D. Goulder will attend to his welfare while in the city.

The English underwriters seem determined to find out where the Cayuga is lying, and have closed a contract with a searching party to locate the foundered vessel. While considerable of the flour would be found in good condition even, after being submerged, it is not likely that it would pay for salvage services. The foreign underwriters have that bull-dog pertinacity, just the same, and have a curiosity to know just where their money lies sunk.

The Cleveland Ship Building Co. will furnish the large steel tow barge now under construction at the yards of the Chicago Ship Building Co. to the order of Mr. John Corrigan, with a Scotch type boiler 7 feet in diameter and 8 feet long to be tested for 120 pounds steam fitted with 32 inch Adamson furnace. A similar outfit was placed aboard the two large steel schooners Marcia and Malta, built at Chicago, for the Minnesota Steamship Co., of this port.

The steel steamer Alva, ashore on the North Manitou, is in a very exposed position and it now looks as if the wrecking job would be rather an expensive one. She was light when she stranded and has piled herself in among the breakers so that it is difficult to get at her. The south-east gale of Tuesday has probably done great damage to her. The Alva is valued at $150,000 and is insured for $120,000 in the following companies: Reliance, Marine, Chicago Insurance Co., Sea, Marine Insurance Co., Limited, North America, General Marine, Greenwich, St. Paul, London Assurance, Commercial Assurance, Erie, British-American, and Western Assurance Co.

MILWAUKEE, WIS.

Special Correspondence to The Marine Record.

The steam barge Mary Mills broke the crosshead of her engine last week. She repaired at Menominee.

A Toledo firm has offered the Milwaukee Tug Boat Co. $8,000 for the tug Starke. This tug was built in 1889, and her dimensions are 65, 19, 8, feet.

The new yacht built at Racine for Lake Erie parties has gone into commission. She is built on the lines of the Valiant, and is up to date in every way.

Owing to the strike of coal handlers at Chicago, the City of Paris brought 1,000 tons of coal and the Saubar her entire cargo, to this port to unload.

Hiram B. Harr & Co., of Chicago, have the contract for extending the south arm of Milwaukee breakwater 400 feet. Preparations for work have already begun.

Rieboldt, Wolter & Co., who bought the wreck of the schooner Quickstep, have been relieving her of her canvas and gear. A tug will dredge a channel to her before any attempt is made to pull her off the beach.

Ben Herbst has resigned the agency of the Lake Michigan and Lake Superior Transportation Co., at Milwaukee and accepted the position of local agent of the Goodrich line under secretary and general freight agent Reynolds. Mr. Herbst will assume the duties of his new position as soon as his successor to the Lake Superior line agency reports for duty.

Work will be commenced this week toward widening the harbor entrance at Sheboygan. The south pier is to be removed about 100 feet south, making the total width about 330 feet. Late last week the Goodrich line carried up 50 tons of iron for bolting together the cribs, and other necessary material has arrived. This improvement, when completed, will render the Sheboygan harbor one of the very best on the lakes, and thereafter sailing vessels will have little difficulty in making that port.

PROTECTION FOR OCEAN NAVIGATION.

BALTIMORE, MD., May 28, 1895.

To the Editor of The Marine Record:

Whenever in party platforms I see indorsements of the sound principle of "Protection," or read in papers and magazines articles or speeches headed "Protection to American Industries," and call to mind the fact that a great and noble "industry" essential to our economic independence and once a "pillar of our prosperity," has virtually perished and become almost forgotten, I wonder whether the "Doctrine of Protection" has really any positive statesmen behind it, or is anything more than a speculative party belief. Our carrying in the foreign trade is the oldest unprotected industry in the United States. It is now 67 years since our government, through free-trade acts and treaties, abandoned the ship of the United States in this trade to the certain failure which always attends unequal competition and poorly paid business. No other industry was turned out to survive or perish.

When I reflect that this proscription, this desertion of our own interest, this relinquishment of rightful inheritance to foreign nations, has crippled our commercial enterprise, hindered our financial growth and paralyzed our shipping power, and weigh the fact that the "Shipping Question," so-called, is never acknowledged as "before the country" in the political headquarters, in the party press, or in public thought, I ask myself: Can it be possible that "Protection" is the broad and vital principle so earnestly proclaimed? or is it the case that navigation, although an industry, is not of use and value to the nation, but a vicious occupation to be frowned on by public sentiment?

The cross-purposes of such a policy are manifest. Its unwisdom and inexpedience have presumptive proof in the fact that our shipping in domestic trade, much of it belonging to interior ports, is fully protected, foreign vessels being prohibited from competition with American. As a consequence this traffic is in the hands of citizens, and we have the best coasting, lake and river service in the world. On the other hand, our unprotected ocean marine having suffered virtual annihilation, it has resulted that our foreign trade has passed into alien hands and is lost, incalculably to our damage and insecurity; and the party of protection, to the concern and disapproval of every thoughtful citizen, seems content, since nothing is done about it. It is true that "shipping planks" have worked their way into national platforms. Congress has had bills reported from committees, and once in a while given a day to a shipping debate; but, since the war and its waste of tonnage, 30 years, with 12 of full protective power, have come and gone and seen not a single act passed looking to the substitution of a protective for a free-trade policy and the certain resumption of our foreign trade and transportation into our own hands.

We have only to compare our past with our present proportionate carriage of commerce to realize into what a dangerous dependency we have fallen on foreign nations, their capital and labor, their good will and confidence, especially since the war. Without the services of alien shipbuilders, shipowners, merchants, bankers, underwriters and mariners we could carry on, of our own commerce, about one-tenth only at the present time. Not only is this true of our foreign trade, but the great wealth acquired in its pursuit has been gained from us. The very large amount of tonnage employed has been built mostly from earnings which our own people should have received. We pay for ships, but do not own them. We furnish the cream of European traffic, but scarcely secure the buttermilk of the business for our share. We find the stone, the sand and cement; but, for the want of statesmen in congress, the fortress is built for a foreign antagonist, our rival and enemy. If the national interest, for 30 years past, had been neglected on the land as on the sea the Union would not now be worth another four-years' war for its preservation.

For six years after the revolution, under the free-trade conditions then existing, our navigation made no progress, although it fared better than manufactures. From the institution of the government and until 1815, favored as a "Child of Protection," it advanced and developed wonderfully. It encouraged production, aided commerce and greatly increased our country's wealth. It balanced our foreign trade and made it safe to buy—as well as profitable to sell—abroad. It spread prosperity among the people, consolidated the states of the republic, created maritime power, exalted our rank among the nations and secured our national existence from the danger of discontent. In the period from 1815 to 1828 a change of policy took place, the great progenitor fell from grace, the loyal descendant was alienated, and veritable strangers—tramps from the roadside—given his place at the table. The twentieth congress, which last withdrew protection from the ship in ocean trade, enacted the highest tariff ever laid.

It did not foresee the bad effects of increasing foreign participation in our commerce and diminishing our own. It did not suppose that the freights taken from our own and given to foreign vessels would, in the end, work our discomfiture and disgrace, not alone upon the sea but on the land as well. It was unaware that an American marine, of itself, was, practically, a better protector of the common interest than the additional duties which it enacted, and that, unfortunately, increased the cost of vessels. In fact, we have only a few statesmen now, after many evil consequences of a free policy have been suffered, that can grasp fully the expedience, importance and necessity of entrusting to our own people, mainly, the prosecution of our trade and transportation beyond the sea. Were it not otherwise, patriots would not now be begging for a protective policy in the national interest.

The shipping question needs only to have justice done it in examination and discussion, so the nation can fully apprehend its merits and meaning, its relations and connections, to cause congress to do its duty, and the responsibility for this performance rests, undoubtedly, upon the shoulders of protectionists, since they have the care of the nation.

WILLIAM W. BATES.

TRANSPORTATION RATES.

THE MARINE RECORD has frequently pointed out the enormous reduction made even during the past decade in transportation charges on the lakes, and our readers are as a rule well versed in the season's freight rate changes, but simply as a condensed report and comparison we give the rates for the past eight years as compiled by government officials at Sault St. Marie under the direction of General O. M. Poe, Corps of Engineers, U. S. Army, in charge of the North-west division of river and harbor improvements, from which it may be seen how great the reduction in freights have been:

COMMODITY.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
Coal net tons	$ .90	$ .70	$ .47	$ .45	$ .43	$ .41	$ .40	$ .40
Flour, bbl	.29	.17½	.18	.13	.15	.16½	.17	.14
Wheat, bu	.07	.03½	.04	.03	.04 6-10	.03 6-10	.02 8-10	.02½
Grain, bu	.07	.04½	.04¼	.02	.03½	.03¾	.02¾	.02¾
Corn, bu	.07	.04½	.03¼	.03	.03½	.03¾	.02¾	.02 9-10
Manufactured iron, net tons	2.35	1.80	2.10	1.34	2.50	2.15	2.00	.90
Pig iron, net tons	2.35	1.30	1.45	1.35	1.17	1.23	1.30	1.15
Salt, bbls	.18	.16	.18	.15	.18	.15	.12	.12
Copper, net tons	2.60	2.35	2.25	2.38	2.00	1.40	1.75	1.95
Iron ore, net tons	1.75	1.28	1.14	1.10	.98	1.00	.80	.70
Lumber, M. ft., B. M	4.00	2.80	2.70	2.38	2.70	2.95	2.35	1.90
Silver ore, net tons	3.00	1.90	1.90	2.25	2.25	2.25	2.25	2.25
Building stone, net tons	1.15	2.05	2.02	2.00	2.00	1.67	1.36	1.28
Unclassified freight, net tons	4.00	3.00	3.00	2.75	3.58	3.60	3.00	2.75

The foregoing figures are of course no revelation to vessel interests, but classed in this manner from year to year they more clearly bring to view the close grading and general reduction on all commodities transported by water.

COAL HANDLING BY MACHINE.

Mr. Neuerburg, of Cologne, has invented a new swinging conveyor for transferring coal and similar commodities. The apparatus consists of a trough, suspended at each end by two pairs of links, so as to swing freely in a longitudinal direction; and flap valves are set at equal intervals inside the trough, also swinging freely on horizontal axis, but so arranged as to make an obtuse angle with the bottom and yet be capable of rising therefrom. The trough receives a horizontal travel by any suitable mechanical movement, but in such a manner that the forward is much quicker than the backward stroke, the consequence being, it is stated, that when pieces of coal or other substances are allowed to fall in at one end, the swinging movement of the trough gradually passes them on to the other end, where they fall out.

CORROSION OF IRON AND STEEL.

When steel is exposed to the action of sea water and the weather, it is said to corrode at the rate of an inch in eighty-two years; an inch of iron under the same conditions corrodes in one hundred and ninety years. When exposed to fresh water and the weather, the periods are one hundred and seventy years for steel and six hundred and thirty years for iron. Completely immersed in sea water, the rates are: Steel, one hundred and thirty years; iron, three hundred and ten years; and in fresh water, steel, six hundred years; iron, seven hundred years. Iron piles corrode most near low water mark; marine growths act as a protection.

AN AUTOMATIC BRIDGE.

In France there is a little bridge which we are told, is so operated by the rise and fall of water in the adjacent lock of the Eastern canal, as to be always open to permit passage of boats when it is possible for them to be in transit across its site, and yet is always closed so as to span the canal when a boat is in the lock. The bridge is a counterweighted bascule girder with one leaf, nearly 10 feet wide, which spans the 19 foot canal, or is opened to a perpendicular position for the passage of boats. The girders are pivoted on a horizontal axis, and the counterweighted short arms, which are about 6½ feet long, revolve in a masonry chamber whose bottom is above high water in the low level of the canal and communicates by an open pipe with the lock, filling and emptying simultaneously with the upper portion of the latter. A cylindrical horizontal float, pivoted to the ends of the short arms of the balanced girder, rises and falls with the level in the lock, and has sufficient weight and buoyancy to overcome the weight and friction of the bridge, raising it when the lock is empty and lowering it when it is full. Hand turning gear is provided to manipulate the bridge when the lock is open, if necessary.

NIAGARA RIVER CHANNEL.

There has been considerable discussion going on this season regarding the depth of water in Niagara River from Buffalo to Tonawanda. The channel has been improved, marked and buoyed and as a satisfaction to those using the fairway, Major Ruffner, United States engineer, at Buffalo, has made a careful inspection of the river from which he makes the following report: There is at present 16 feet of water over Horseshoe Reef at the mouth of the Niagara River at mean lake level. A dredge is engaged in cleaning up the low ridges left from dredging the past three years. After passing the reef, the ranges should be followed as far as the red can buoy only, and then vessels should head to the west of the inlet pier, passing it between three and five hundred feet to the westward. Any closer approach might result in striking a shoal with 15 feet six inches of water over it, about 100 yards over. When opposite the ferry landing on the Canadian shore vessels should head for the upper buoy of the International bridge buoys. Going down the Strawberry Island channel secures good water 50 feet from the three black spar buoys. If these directions are closely followed the danger of grounding will be greatly obviated.

DOMINION AIDS TO NAVIGATION.

The total number of light-stations, light-ships and fog alarm stations in the Dominion of Canada on the 30th of June, 1894, was 624, and of lights shown 755; the number of steam whistles and fog horns, 61; the number of light keepers and engineers of fog alarms with masters of light-ships was 630. The annual cost of this service amounted to $476,225.85.

CANADIAN LIFE-SAVING STATIONS.

The following life-saving stations on the Dominion side of the lakes are in operation during the season: Collingwood, Goderich, Pelee Island, Port Stanley, Port Rowan, Toronto, Port Hope, Cobourg, Wellington, Poplar Point. All of these stations are connected with telegraph or telephone lines to the nearest point of assistance.

CHICAGO SHIP AND DRAINAGE CANAL.

(ILLUSTRATED.)

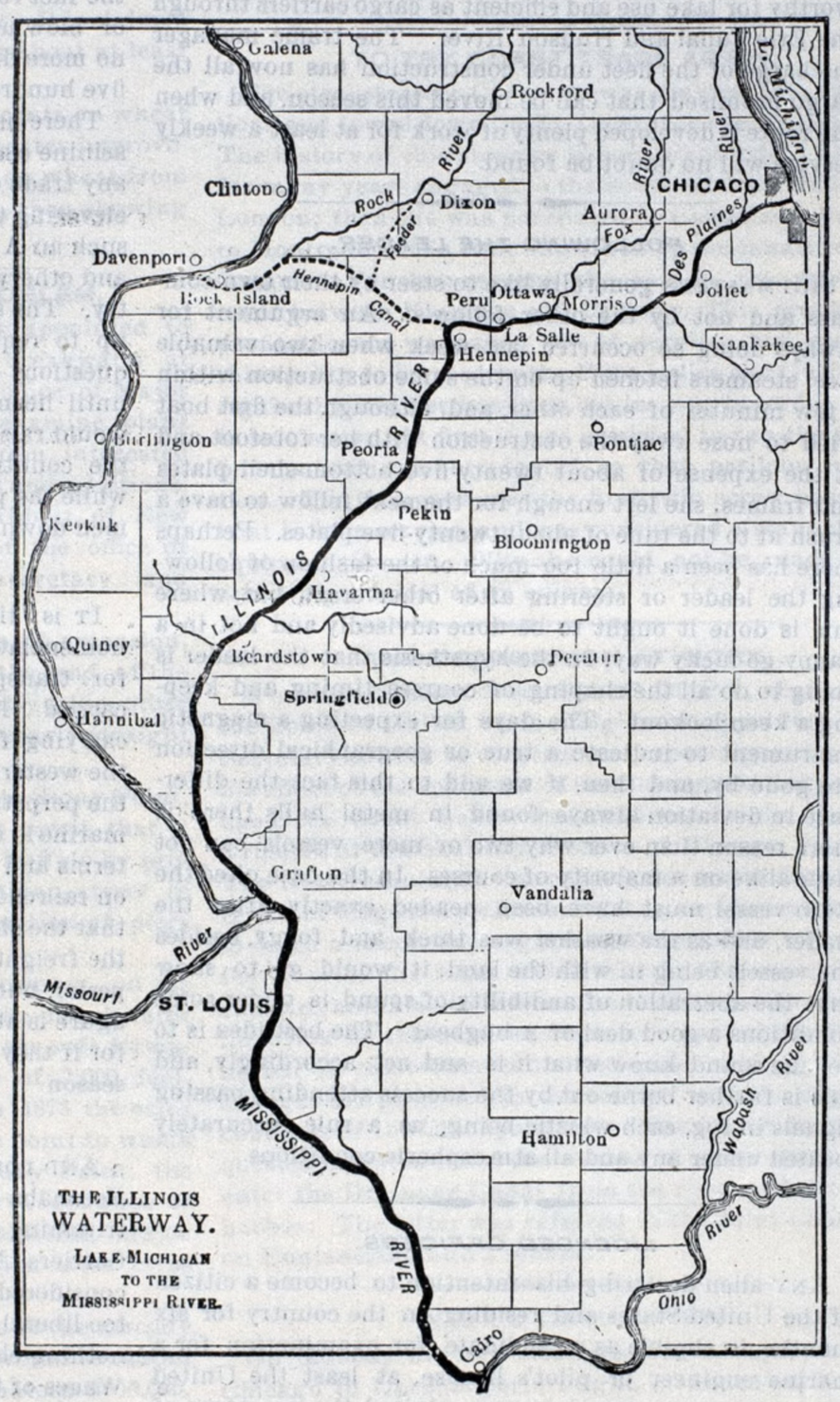
By constructing an artificial waterway from Lake Michigan to Joliet, Chicago restores an ancient outlet to the Mississippi. For ages the waters of the lakes were poured into the Gulf of Mexico, through this outlet by way of the Mississippi Valley and the trough hewn out of the rock for a distance of 20 miles, the bottom of which is only six feet above the present level of the lake, is from one to two miles in width. It may be said to begin at Summit, 11 miles west of Lake Michigan, and to end at Lockport, 20 miles further west and south. It is in the bed of this natural outlet that a new channel is now being excavated of sufficient depth to renew the outflow from the lake.

A remnant of the ancient stream is found in the Desplaines River, which now, a mere thread, winds through the valley over its rocky bed. This river rises in the southern part of the state of Wisconsin, and flows southward parallel with the western shore of Lake Michigan, 12 to 40 miles distant. At Summit it turns abruptly to the southwestward and follows the valley to a point 60 miles below Chicago where it unites with the Kankakee to form the Illinois River. The Illinois River continues southwestward across the state emptying into the Mississippi at Grafton, 325 miles from Chicago.

The period of construction for the Illinois and Michigan Canal dates back to July 4, 1836, and on April 23, 1848, the barge General Thornton, of LaSalle, passed through the entire length of the canal from LaSalle and arrived at Chicago on that date. The route was used via the Illinois River to reach St. Louis, with more or less commercial success for many years though the water shoaling in the Illinois River eventually rendered the canal worthless, either for traffic or sewerage. The general government then took up the question and after repeated surveys improvements were carried on in a desultory way for several years.

In 1866, Col. J. O. Hudnutt, of Chicago, surveyed a canal route from Hennepin to Rock Island, which was adopted substantially for the present Hennepin Canal. A later survey showed that the canal would be 64 miles in length and it could be supplied with water by a navigable feeder 38 miles in length from Rock River at Dixon.

The connection from Chicago to Rock Island on the Mississippi being accomplished, all efforts will be turned in the future to improving the Illinois River from Hennepin to Grafton and so that all vessels that can reach St. Louis may be able to proceed through to Chicago and thence enter the lake trade.



THE ILLINOIS WATERWAY.
LAKE MICHIGAN TO THE MISSISSIPPI RIVER.

MARINE HOSPITAL SERVICE.

The marine hospital service is maintained out of the tonnage tax. In each of the large ports a hospital is located. In the smaller seaports a physician is appointed by the government to care for all cases that come into the port. These physicians are paid according to their work, while at the large hospital stations the doctors are paid a yearly salary.

Only sailors are admitted to the hospital who have served 60 days continuously on an American vessel previous to their application for admission. After such service a seaman is entitled to free treatment for 60 days, whether he is at work or as an indoor patient.

This provision was adopted to prevent men not sailors from getting the benefit of the service. Before the rule was adopted it was a common practice for men when sick to ship on a vessel and at the first port go into the hospital for treatment. Even now men attempt the same thing. They often succeed, especially when the master is somewhat careless or sympathetic and gives them a false certificate of 60 days' service, when perhaps they had worked but a few days on the vessel, or in some cases, not since the previous season.

The seamen belonging to the navy are treated by the service, but the Navy Department has to pay the bills.

All applicants for positions on life-boat stations are examined at the marine hospital. The service does an immense amount of good and is one of the most beneficial departments under the control of the government.

WOMEN LIGHT-KEEPERS.

About 20 women are now engaged by the Light-House Board to look after the light-houses on our coasts. Two of them are on the coast of Rhode Island, several are in Maryland and in New York State, one at Michigan City, Mich., one at Milwaukee, one on the Mississippi at Biloxi, several off the coast of California, and two or three near the mouth of the Mississippi River in Louisiana.

The light-keeper in charge at Michigan City, Mich., is Miss Harriet Colfax, a cousin of the late vice president Schuyler Colfax. When she was appointed the lights were of lard oil, and it was her nightly duty to pick her way along a wet and slippery causeway, often in the teeth of a heavy gale or when the rain and hail were descending in torrents. After reaching the end of the causeway she had to climb up a slippery ladder and set the lamps. At midnight it was her duty to refill the lamps, so that they might not become extinguished before daylight. This shows a good deal of the spirit of Ida Lewis, keeper of the Lime Rock light-house off the coast of Connecticut and the Grace Darling of the United States.

A GOVERNMENT DREDGE LAUNCHED.

The large government sea-going dredge General C. B. Comstock was sucessfully launched in the ship yard of Hugh Ramsey, at Perth Amboy, N. J., on Monday morning.

The vessel was built for the government under contract with the Bucyrus Steam Shovel & Dredging Co., of South Milwaukee, Wis. The first work of the dredge will be in the harbor of Galveston, Texas. The dredge was designed by chief engineer A. W. Robinson, of the Bucyrus company.

The vessel is thoroughly sea-going and has compound engines of 500 horse-power which will enable her to make a speed of ten knots an hour. She also has two powerful electric search lights.

Just as the dredge was leaving the ways she was christened the General C. B. Comstock by Miss Lulu Ramsey, the daughter of the builder, after the distinguished officer of the corps of engineers, who recently retired.

Among the government officials who witnessed the launch of the vessel were Major Miller, of Galveston, Texas; Capt. J. B. Rauter, of the Engineers' Department, of Galveston; F. A. Kimmer, Colonel Ross Valentine, of Woodbridge; Dr. Lancaster, H. B. Wilson, of the Engineers' Department, of Galveston.

HAY LAKE CHANNEL.

Thomas R. Harvey, proprietor of Harvey's marine bureau at the Sault St. Marie, replying to the recent published statements made by Commander Mead, U. S. Navy, says that the currents of the Hay Lake channel will not interfere with any craft if the channel is properly buoyed. The trouble heretofore has not been that the masters have been running the channel when it was too dark to see the buoys, but that there were no buoys to see. Harvey also claims that buoys were not properly placed in position in the channel until $75,000 worth of damage had been inflicted upon grounding boats, and he wants to know the cause of the delay. He also says the second black stake at the foot of the dyke is about 150 feet south of the channel, and there is at this point a bar of boulders and mud which is likely to cause serious damage. There are no buoys from the turning stake in Mud Lake up to the first two stakes at the foot of the dyke, and more stakes are certainly needed at this point. Harvey further states that there should be at least five additional pairs of stakes placed from the turn at the foot of Hay Lake and leading on to Nine-Mile Point.

THE LUCANIA'S NEW RECORD.

A cablegram from Queenstown, May 24, says: The Cunard Line steamship Lucania, Capt. McKay, from New York May 18, has beaten her daily average speed record. She made the trip in five days, eleven hours and forty-one minutes, being three hours and thirty minutes behind her own eastward record of five days, eight hours and thirty-eight minutes, made in September, 1894; but on the trip just completed the Lucania made an average daily speed of 22.01 knots per hour. Her best previous daily speed record was 21.89 knots made in June, 1894. The Lucania, according to her log passed Sandy Hook lightship at 2.24 P. M. on Saturday last, May 18, and arrived off Daunt's Rock at 6:40 A. M. on the 24th.

In lat. 48° 35′ north and lon. 29° 45′ west she passed a derelict whose timbers were showing six feet above water. The United States cruiser, Columbia was not sighted by the Lucania, after the latter passed Sandy Hook. The cruiser passed the Hook two minutes after the Lucania.

COAST DRY-DOCKS.

The dock at Port Royal, South Carolina, which is nearly completed, is the largest in the country, and is capable of accommodating the battleships now building, No other dock is large enough to hold them. Its dimensions are 627 feet and 76 feet, and is the first of the three large docks now building to be finished. The dock building at New York is practically of the same dimensions as that at Port Royal, though it seems problematical when this one will be completed. A third dock, which is to be the greatest in the country, is now rapidly progressing toward completion at Puget Sound, and, when finished will be one of the finest in the world. This dock is intended to be used in docking the battleships and large cruisers stationed on the Pacific coast, where there are no facilities now adequate for the purpose. Land has been purchased at Algiers, opposite New Orleans, for the site of a fourth great dock, and an appropriation of $250,000 has been asked by the Secretary of the Navy to begin the work, which will cost $1,250,000.

BRITISH CRUISER LAUNCHED.

The new British cruiser Terrible, was launched in the Clyde on Monday. She is of 14,250 tons, with engines of 25,000 horse-power, and is expected to develop a speed of 22 knots an hour. Her dimensions are 538 feet long, 71 feet beam, and she is fitted with 326 watertight compartments, and is as unsinkable a man-of-war as can be built.

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CLEVELAND, O., MAY 30, 1895.

MAJOR M. B. ADAMS, Corps of Engineers, U. S. A., light-house engineer at Detroit, advertises this week for proposals for the construction of an iron tower at Calumet pierhead, Ill.

A PROPERLY qualified board, with fairly complete evidence before it, need not consume one hour's time in finally placing the blame of the Cayuga-Hurd collision if it so desired. A part of Rule 18, "Steering and Sailing Rules," says: "The steamer which has the other on her starboard side shall keep out of the way of the other." The Cayuga and Hurd were to starboard of each other, and, irrespective of passing signals, the law is explicit Comments are needless.

WOODEN sheathing on the bottom of a steel hull saved the underwriters a nice round sum of money a few days ago. By adding sheathing a few inches more draft is probably taken up, and if there was a foot or two, or in some instances only a few inches more water in the shoal places, no sheathing would be required. This argues that the owner placing sheathing on the bottom of a vessel deserves and should command the very lowest terms that underwriters, hull and cargo can possibly offer in shading particular rates.

THE acting secretary of the Revenue Cutter Service, Treasury Department, Washington, D. C., asks for proposals for the construction of a steel propeller to be delivered at a port on Lake Michigan on or before July 1, 1896. As the appropriation for this craft reaches the fairly respectable figures of $175,000, it is to be hoped that lake shipbuilders will deem it to their interest to enter into competition for the work. A Chicago firm were the successful bidders against all coast competitors for the construction of a new light-ship, the contract for which was recently awarded by the Light-House Board and as the revenue cutter will be a more important contract, close figuring is sure to be done by those desiring the work. Naval tonnage of any class may not be built at a lake port, but there is no such a proviso covering departmental tonnage, such as the Light-House and Revenue Cutter Service.

THE second casualty to valuable tonnage through going ashore on N. Manitou Island is recorded so far this season. From present reports the new steel steamer Alva fetched up about the same spot as the wooden steamer A. A. Parker, found recently, and she will add one more to the already long list of damages to steel steamers, a class which has been remarkably unfortunate this season. There is a life-saving station at Pickard's wharf on the east side of N. Manitou Island and the sailing directions state that the land may be approached safely to within a quarter of a mile on the north shore and half a mile on the east and west shores, but a rocky spit extends more than three-quarters of a mile to the southward from the S. W. point. It would appear that a fog signal is required at the south point of N. Manitou, and it is also worth while considering if at the same time the light should not be moved from the south island to the fog signal location on the north island.

LAKE AND CANAL TRADE.

SPECIAL tonnage, to be built and equipped for both lake and canal service, is now in course of construction at a lake shipyard, and the prospects for a lively trade in this direction is said to be most flattering. The present fleet consists of one steamer and five consorts, and as soon as the plans on which these vessels have been built are endorsed as the most efficient possible for canal work, a contract is to be placed with the same builders for four more tows, or four small steamers and twenty consorts. There is no reason why the joint lake and canal transportation service should not work to advantage in cheapening the cost of carriage from the seaboard to the west and vice versa. Towing on the lakes has been a marked feature for many years, and it is the judgment of some of the shrewdest vessel owners that much more will be done in the future. Such a view is very much in evidence this season, as steamers that have always traveled alone are now engaged in towing consorts, and, as we have said, there is no reason why miniature fleets, as represented by a string of small tow barges, would not be found seaworthy for lake use and efficient as cargo carriers through the Erie Canal and Hudson River. The traffic manager in charge of the fleet under construction has now all the cargo promised that can be moved this season, and when the route is developed plenty of work for at least a weekly service will no doubt be found.

FOLLOWING THE LEADER.

SHIPMASTERS generally like to steer by their own compass and not by the other fellow's. An argument for always doing so occurred last week when two valuable steel steamers fetched up on the same obstruction within a few minutes of each other, and, although the first boat tried to nose away the obstruction with her forefoot and at the expense of about twenty-five bottom-shell plates and frames, she left enough for the next fellow to have a brush at to the tune of about twenty-five plates. Perhaps there has been a little too much of the fashion of following the leader or steering after other craft, but where this is done it ought to be done advisedly and not in a happy-go-lucky way, on the hypothesis that the leader is going to do all the shaping of courses, timing and keeping a keen lookout. The days for expecting a magnetic instrument to indicate a true or geographical direction are gone by, and then, if we add to this fact the difference in deviation always found in metal hulls there is more reason than ever why two or more vessels can not steer alike on a majority of courses. In the case cited the stern vessel must have been headed exactly after the leader, and as the weather was thick and foggy, besides the vessels being in with the land, it would go to show that the aberration of audibility of sound is under some conditions a good deal of a bugbear. The best idea is to get the sound, know what it is and act accordingly, and this is further borne out by the success attending passing signals in fog, each whistle being, as a rule, accurately located under any and all atmospheric conditions.

LICENSED OFFICERS.

ANY alien declaring his intention to become a citizen of the United States and residing in the country for six months is eligible as a candidate for examination for a marine engineer or pilot's license, at least the United States attorney general has so advised the secretary of the treasury. How this ruling can be made to coincide with the laws framed by the board of supervising inspectors of steamboats relative to the granting of licenses, we are unable to fathom. However, with this light thrown upon the subject it is easy to understand why English licensed engineers retained their positions on the Atlantic Liners New York and Paris when those vessels were granted American registry and why other comparative aliens may now be ready to step into the engine rooms of the St. Paul and St. Louis. On the lakes this revelation on the licensing question throws down the barriers with a vengeance, as Canadian engineers and pilots may now winter at a United States port and join American vessels as duly licensed officers in the following spring at the opening of navigation. We do not desire to enlarge upon the subject at this time further than to state that if the law is a good one it can not be too widely heralded. On the other hand, if it is derogatory to the best interests of a class of American citizens, it can not be repealed any too soon.

ENGINEERS' LICENSES.

IN glancing over the classification or license grading for marine engineers, it looks nothing less than farcical to find enumerated no fewer than thirty-six different forms or grades of licenses, any of which may be issued to an applicant. These grades are divided as follows: For chief engineer ten grades, first assistant ten grades, second assistant nine grades, and third assistant seven grades. Judging from the fine distinction which must be made to give engineers the proper mechanical credit on their annual form of licences it might be imagined that an expert committee, or a number of them, would require to be in continual session so as to weigh evenly the merits of each candidate presenting himself for examination as a marine engineer. Well! it may be stated that nothing of the sort takes place, the thirty-six grades to the contrary notwithstanding. The local boiler inspector, himself a marine engineer, can rattle through an examination and choose the grade that he intends giving the applicant or candidate in an hour or two. This is an expeditious, if not a heroic manner of doing business, but the fact remains, that any man who can wreck an engine or blow up a boiler on a hundred-ton vessel would find no more difficulty in bringing about a similar result on a five hundred-ton boat.

There is something radically wrong where such an asinine classification of grades are permitted to obtain in any trade or profession and it is degrading rather than elevating to the business of marine engineering to have such an A. B. C. code printed in department publications and otherwise scattered broadcast throughout the country. The steamboat inspection service should be keyed up to require a competent standard and advance the questions given in the examination papers each year until licenses were worth competing for. This system would raise the status of marine engineers throughout the country and bestow credit where credit was due, while the present "dot and carry one" style holds young men down to a low level.

IT is time that the lake marine let go of railroad nomenclature and called freight the earnings of a boat for transportation charges, and cargo the commodity carried. If cargo is freight, then what is the charge for carrying freight known as? The railroads opened up the western country and daily papers are responsible for the perpetuation of the above misnomers but the lake marine is now important enough to hold to intelligent terms and need not pattern after rules of speech in force on railroads. It is much more clear, for instance, to say that the ship or vessel is loaded with a cargo of iron ore, the freight on which is $1 from the head of Lake Superior, but, whether it is more clear or not, the above figure is about the lowest that vessels ought to carry it for if they are to have a fair paying rate of freight this season.

AND now word comes along that the ore trimmers at Escanaba have agreed to accept the 2½ cent rate for trimming cargoes, advised by the committee of the Lake Carriers' Association. It has for some years past been considered that the charges for ore trimming were rather too liberal, and when freights began to slump there was nothing else left to do but reduce expenses all round. Wages of the men sailing suffered first and then it was a case of casting about to make the handling of cargo a trifle easier. Ore trimmers objecting to any reduction found that modern tonnage could carry cargo without it being trimmed, hence, discretion being considered the better part, work is likely to go an again on the grounds that "half a loaf is better than no bread."

OF course it is only a matter of pouring bulk into several hatchways, but of course, the bulk must be on the spot before it can be poured. The foregoing in reference to the lake steamer Selwyn Eddy loading 2,900 tons of iron ore in eighty-four minutes a few days ago at the docks of the North Western in Ashland, Wis. This dispatch, however, was discounted by the new steamer J. J. McWilliams loading at the Wisconsin central dock a cargo of 3,100 tons of ore in fifty-five minutes. Wonder if there is any port in the world that can show a like record for fast loading? As a rule cargoes are handled on the lakes more expeditiously than anywhere else.

THE LAKE FREIGHT SITUATION.

While rates are still far from satisfactory, vesselmen have every reason to congratulate themselves that the tide of prices is rising, and that what were a few week's ago looked upon as adverse circumstances are proving to have been for the best.

Owners have succeeded in advancing the ore rate from the head of Lake Superior despite determined resistance by shippers, and 80 cents has been paid all this week. Indications are that with new sales of ore and steady shipments the rate will advance at least 5 cents better, at least there is strong talk now of 85 cents. The rates of 65 cents from Marquette and 45 cents from Escanaba, advanced 5 cents from each port. Shipments from the latter port will probably increase, now that the trimming difficulty has been settled at a price uniform with other parts.

The Milwaukee rate on coal has been advanced to 35c and shipments of the bituminous will soon be lively if the threatened general strike is averted. Anthracite has been offered in Buffalo this week at 40 cents to Chicago and 25 cents to Duluth.

Lumber on some routes is a little stiffer. It is claimed that the Duluth rate is now $1.75, and one boat at least received that figure.

Grain also shows an advance to 1½ cents on wheat and 1¼ cents on corn to Buffalo. Still greater improvement is hoped for by next week, 2¼ cents on wheat from Duluth to Cleveland not being accepted, thus showing the firmness of the market.

BUFFALO'S BREAKWATER PROBLEM.

The Board of United States Engineers appointed to consider the proposed extension of the breakwater at Buffalo met Monday afternoon in the office of Major Ruffner, Engineer Corps, U. S. A., to examine plans and figures and to hear arguments from interested parties for and against proposed changes and additions.

The board consists of Gen. H. L. Abbott, of New York, president; Major H. M. Adams, of the office of the chief of engineers, Washington, secretary; and Capt. Dan. Kingman, of Oswego, N. Y.

The board is considering two methods of extension, one of building a shore arm from near the end of the present breakwater to the sand catch jetty; the other of extending the present breakwater in a nearly straight line to near Stony Point.

The idea of extending the breakwater to Stony Point, as favored by the Lehigh Valley, has the merit that it would provide for the future growth of Buffalo by protecting the whole lake front from Michigan street to Stony Point, making possible the construction of piers at any point between.

Major Ruffner opposes this plan, however, on the ground that it is impossible to extend the breakwater with crib foundations. At the north end the soft formation is only 40 feet deep for a distance of 2,000 feet. When this part of the work was done in 1873 the cribs were sunk to the rock bottom. From the point to which the breakwater is now completed to Stony Point, the soft blue clay bottom is 78 feet deep for a distance of 1,200 feet, and it would be next to impossible, Major Ruffner says, to construct any foundation with cribs that would stand.

Major Ruffner advocates the enclosure of the already protected space by a shore arm which would be about 3,000 feet long and would cost approximately $500,000. Major Ruffner argues that this would make a complete harbor of refuge for Buffalo, if not a large one.

The board of aldermen want the present structure extended about 2,000 feet toward the Canadian shore, representing that this would give protection to all that part of the city's front lying below Erie street.

The opposition to the shore arm is very marked. Ex-Postmaster-General Bissell appeared before the commission Monday on behalf of the Lehigh Valley Transportation Co., and General Superintendent Rollin H. Wilbur, of the Lehigh Valley, also to discourage the shore arm project. They stated that if the breakwater were extended towards Stony Point the Lehigh Valley is willing to cut a canal through from the lake front, north of Tifft street, to Buffalo Creek and to build docks on the front at that point.

The Western New York & Pennsylvania railroad favored the construction of the shore arm.

On one point engineers and all were agreed, and that was that whatever improvement would be recommended should receive encouragement from Congress in the shape of a general contract appropriation. It is very patent that the work should not drivel along under the extravagant method of piecemeal appropriations.

Some of the engineers think that the breakwater extension is possible with the use of mattrasses under the foundations with wide aprons on the lake side to prevent undermining.

The commission went out Tuesday for an observation trip. No outsiders were allowed to accompany the members.

NEW LAKE TONNAGE.

The Bureau of Navigation, Treasury Department, issued official numbers to the following lake built vessels during the week ending May 18, 1895: Steam—North Land, 4,244 tons gross, 2,339.78 tons net, port of hail, Cleveland, built at Cleveland; Tempest, 68 tons, Toledo, O., built at Miami, O.; Frank L. Pabst, 42 tons, Buffalo. Sail—Charlotte R., 19 tons, Chicago; Puritana 9 tons, Cleveland, built at Racine, Wis. Unrigged—Joseph F. Kennedy, 141 tons, Buffalo.

TO TRY COAST TRADE AGAIN.

The steel steamer Campana was divided into two sections and towed down the St. Lawrence canals last week. The history of this steamer is somewhat odd. She was for many years engaged in the South African trade from London; then she was purchased by Canadians, brought to Montreal, cut in two, and towed up the canals to Lake Ontario. For two seasons she ran in the passenger trade between Kingston and Chicago. This proving unprofitable, she was taken out of service, but was sold this spring to be used in the West Indies and Gulf trade. Again the steamer has been cut in two in order to get to salt water. At first it was proposed to run the rapids, but the boat was not adapted to that perilous navigation. The Campana was the first twin screw passenger boat in lake service, and was considered a staunch, well equipped steamer. Why she could not be made to pay seems a good deal of an enigma.

THE COMMISSION AT WORK.

A communication from Gen. O. M. Poe, chairman of the Board of United States Engineers appointed by the Secretary of War to consider and report upon the probable effect of the operation of the Chicago Drainage Canal upon the Great Lakes, was read before the Board of Trustees of the Sanitary District of Chicago this week. The letter requested the commissioners to furnish the Board of Engineers with such data as might enable them to reach a conclusion regarding the possible lowering of the level of the lakes which will be the source of the channel, and also to inform the board whether it is the intention of the trustees to use any part of the Chicago harbor in connection with the canal, and, if so, what changes are proposed in connection with the navigable channels of the Chicago River. The board further requested an estimate of the volume of water which would enter the Drainage Canal from the river and outer lake harbor. The letter was referred to the Joint Committee on Engineering and Finance.

WEEK'S CASUALTIES.

On Monday the new steel steamer Alva, from South Chicago to Lake Superior, light, stranded on N. Manitou Island, Lake Michigan. Assistance was promptly dispatched, but owing to a southwest gale setting in on Tuesday no work could be done on her, and it is now likely that the hull damage will be very extensive. She will need to be jacked up with screws to release her.

The steamer Samoa stranded on Hyde Park reef, near Chicago, on Saturday. Prompt and efficient assistance released her, and she was towed to Milwaukee for final repairs.

The steamer Saginaw collided with the Atmosphere abreast of Belle Isle on Wednesday last, and both vessels received considerable damage.

The tug Charles O. Smith, owned by Smith & Boutelle, of Bay City, stranded on Scarecrow Island, Georgian Bay, Sunday afternoon, during a dense fog. Assistance was immediately dispatched to her.

The steam ferry-boat Trilby capsized in Buffalo Creek on Saturday last. She had 40 passengers on board a the time, chiefly Polish laborers. It is thought all were saved.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing of the sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, N. E. by E. for a sunrise bearing would read N. W. by W. for a sunset, or E. 30° N. to W. 30° N.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Sunrise.	Bearing (degrees).	Bearing (points).
June 4	E. 30° N.	NE. by E. ¼ E.
June 8	E. 32° N.	NE. by E. ⅛ E.

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN, LAT. 44° N.

Sunrise.	Bearing (degrees).	Bearing (points).
June 4	E. 31° N.	NE. by E. ¼ E.
June 8	E. 33° N.	NE. by E. ⅛ E.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing (degrees).	Bearing (points).
June 4	E. 33° N.	NE. by E. ⅛ E.
June 8	E. 34° N.	NE. by E.

LAKE SUPERIOR, LAT. 48° N.

Sunrise.	Bearing (degrees).	Bearing (points).
June 4	E. 34° N.	NE. by E.
June 8	E. 36° N.	NE. ⅞ E.

With a compass correct magnetic, the difference between the observed and true bearing will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing, the result after the variation is applied will be the amount of deviation on that course.

FLOTSAM, JETSAM AND LAGAN.

Capt. J. Root, owner of the schooner Ed. Kelley, died at Tecumseh, Mich., last week.

The steamer Visitor, built at Ludington, has been taken to St. Joseph to be finished.

"Black Jack", one of the Frank E. Kirby's carrier pigeons, was killed by a hawk one day last week.

The Plum Island range lights at Death's Door Passage, will be in service in a very short time.

From present indications the Canadian Sault canal will not begin to lock vessels before Aug. 11.

Large fields of floating ice are still reported from Georgian Bay.

Regular lake underwriters agencies collected $1,635,408 in premiums last year.

John S. Nesbitt, of Sarnia, has sold the tug Jessie and the scow Transfer to the Sault Ste Marie Fiber Co., for $5,500.

The damage to the Nicholas by stranding on Caribou Island is fixed at $25,000 of which $15,000 was on the cargo.

For $4,000 the tug E. D. Holton has been sold by Chas. B. Slyfield and others to A. J. Slyfield, of Frankfort, Mich.

The schooner Anna Thorine has been sold by Alfred S. Packard, of Covert to Louis Tallakson, of Chicago for $1,000.

Capt. John Bolton, of the steambarge Mary Mills, is one of the few lake masters who served their apprenticeship in the British service.

Diver John Dodd went down to the wreck of the W. H. Barnum, in the straits last Thursday. He found the hull covered with a marine growth and the corn absolutely worthless.

The whaleback steamer, City of Everett cleared from Seattle, Wash., for San Francisco, one day last week with 3,800 tons of coal and 250 tons of fuel. the largest coal cargo that ever left that port.

Carter Bros. of Port Colborne, who bought the hull and cargo of the N. K. Fairbank for $625, are disposing of her 50,000 bushels of corn at 20c per bushel. The grain is scarcely damaged. The hull is not badly burned and the machinery is in fair condition. She will make a good lumber carrier.

The King Iron Works of Buffalo are well to the fore in their manufacture of propeller wheels as the following letter from a Southern port testifies:

WILLIAMSTON, N. C.

H. G. TROUT & CO., BUFFALO:—

DEAR SIR:—Replying to your letter of the 2nd, the captain of the Dennis Simmons writes that the wheel is perfectly satisfactory. Our navigation is very hard on wheels. The steamer has been running four years and yours is the fifth wheel she has had on.

DENNIS SIMMONS LUMBER CO.

LICENSED OFFICERS.

Candidates for engineers' and pilots' licenses are ruled out as ineligible, unless they produce before the licensing board, composed of the local inspectors of steamboats, proof that they are full fledged American citizens. This view has been understood to be an eminently lawful one, supported by United States statutes, and put into force almost every day of the week, until the intent of the law, if such it ever was, had become generally accepted.

Now comes in the following recent decisions to be-fog the local inspectors and the licensed officers of the mercantile marine throughout the United States:

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
WASHINGTON, D. C., May 13, 1895.

W. A. Day, Esq., Counsel for the Marine Engineers' Beneficial Association of the United States, Washington, D. C.:

SIR.—In reply to your communication of the 27th of December, 1894, and the protest against the renewing the licenses of the engineers of the nationalized steamers Paris and New York, you are informed that after due consideration by the department, the opinion of The Honorable The Attorney-General, was asked "upon the question whether the act of Congress amending Section 4131, Revised Statates, approved June 26, 1884, repealed the act authorizing the licensing of certain alien engineers and pilots, approved April 17, 1874."

This department is now in receipt of The Honorable, The Attorney-General's opinion thereon (a copy of which is enclosed for your information), and acting thereunder this department can not comply with the request of the Marine Engineers' Beneficial Association presented by you.

Respectfully yours,
J. G. CARLISLE, Secretary.

DEPARTMENT OF JUSTICE,
WASHINGTON, D. C., May 9, 1895.

The Honorable, The Secretary of the Treasury:

SIR.—I have the honor to acknowledge yours of the 23d ultimo, asking my opinion upon the question whether the statute known as the "Dingley Bill," approved June 26, 1884, amending Section 4131, of the Revised Statutes, repealed an act entitled "An act to authorize the employment of certain aliens as engineers and pilots," approved April 17, 1874.

As the law stood prior to the act of 1884, above cited: two classes of persons were competent to receive licenses as engineers or pilots on United States vessels. Citizens of the United States were one claas. Aliens on the way to citizenship by having declared their intention to become citizens, and by permanent residence in the United States for six months prior to the granting of licenses, constituted another class.

The amendatory act of 1884 did not affect, and was not meant to affect, either of these classes. Leaving them undisturbed, it was obviously designed to make provision for a third class of persons who might be officers of United States vessels under peculiar circumstances and for brief periods.

The members of both the classes first named are regarded as in effect citizens of the United States, and as being eligible as such to permanent employment—as officers of United States vessels generally under Revised Statutes, Section 4131,—and as engineers or pilots of such vessels under the act of April 17, 1874.

The members of the third class, on the other hand, are aliens whom the law excludes from general and permanent employment on United States vessels and permits to serve on such vessels only temporarily and in emergencies.

The provisions of the act of June 26, 1884, being thus in no way in conflict or inconsistent with the provisions of the act of April 17, 1874, both statutes must be regarded as in force, and the latter did not have the effect of repealing the former statute.

Respectfully yours,
RICHARD OLNEY, Attorney-General.

Under the foregoing ruling, it would appear that local inspectors have placed themselves in a position where they are liable to be proceeded against in an action, or rather many of them, for personal damages in not permitting eligible candidates to be examined for a license, and the question shows a great lax of executive ability in the service not being able to properly construe the law. On the subject of licensing officers, local inspectors as a rule have much to learn, as the following incident as reported in THE RECORD may show: "A well known lake seaman, a naturalized American, having allowed the annual issue of his license to elapse for some years, applied to the licensing board at one of the largest lake ports for a re-examination and re-issue of his ticket. The examining officer, or the local inspector of hulls, asked the candidate if he possessed a Dominion license to handle steam vessels, and being answered in the affirmative, the candidate was told that he was ineligible for examination, as by holding a foreign license he must have sworn fealty to that power and thus vitiated his standing as an American citizen. The facts are, that in the Dominion of Canada, as well as in the mother country, the question of naturalization never comes up in any form; all that is required from a candidate, be he a South Sea Islander or a Hottentot, or in a word an alien, is a skillful competency in his trade or profession, and the certificate when granted vouches for this alone. There are no moral, physical or national obligations entered into at all, as the result of the examination is simply to determine technical qualifications.

It is strictly within the province of THE RECORD to advocate reforms in the steamboat inspection service as at present administered, including the customs of the licensing committees, and we have persistently suggested that the laws governing the United States mercantile marine be properly and officially codified, so that "those who run may read," but up to the present time we have been unable to accomplish this innovation or reformation; however, all things come to those who wait, though it must be confessed it has taken a long wait for licensed officers to learn that comparative aliens may enjoy all the privileges of licensed officers in the American merchant navy.

JUDICIOUS ADVERTISING.

Printers' Ink asks if, without looking, can you tell whose ad is on the piece of blotting paper you have just used? Do you know whose calander hangs over your desk? Have you one single time read the ad on the leaf of the calander pad that you tear off every once in a while for the last several days? Come to think of it, can you, unless you are a cycle enthusiast, tell which company sent you the pad? Your answer might help you in determining the value of advertising novelties.

BOOKS AND PERIODICALS.

No. 1, of Vol. 21, of the Proceedings of the United States Naval Institute, just issued, contains, besides other matter, a full and detailed description, illustrated, of the new solarometer, the navigating instrument recently invented by Lieut. Beehler, U. S. N., for providing a method of making astronomical observations independent of the visibility of the sea horizon.

Volume 2, of the Transactions of the Society of Naval Architects and Marine Engineers, comprising the papers read at the last annual meeting of the society in New York last November, with the discussions upon them, has been issued and makes a large and handsome book of over 300 pages, accompanied by many fine plates, plans and diagrams. It may be obtained from the secretary of the society, Mr. Washington L. Capps, Washington, D. C., who has edited the volume with accuracy and efficiency.

The 1895 catalogue of the New Jersey Asbestos Co., Camden, N. J., tells in its introduction, of the acquisition from the United Asbestos Co., Ltd., of England, of all that company's manufacturing and trading rights in the United States. The mining properties of the parent company are in Italy and cover an area of 80 square miles. There are also mines in Canada. The catalogue gives a number of views illustrating the treatment of asbestos in manufacture. The various uses of the Gladiator brands, in their adaptations to pipe and other flange jointing, gaskets, piston rod, valve stem and other packing, and their uses as cement felting for boilers, pipes, etc., are detailed in succeeding pages. The Philadelphia office of the company is 838 Drexel building.

The Mechanical Engineer's Pocket Book. A reference book of rules, tables, data and formulas, for the use of engineers, mechanics and students, by William Kent, A. M., M. E., Consulting Engineer, member Mechanical Society of Mechanical Engineers and American Institute Mining Engineers. It would seem almost impossible for an author to get together so much data under the covers of a small volume, yet it appears that Mr. Kent has accepted the belief of Nystrom where he states "that every engineer should make his own pocket book, as he proceeds in study and practice, to suit his particular business." For more than twenty years the author has been following the advice of Nystrom, and the work now published amply redounds to his credit. As an indication of the subjects treated upon in this valuable epitome of mechanics, we quote some of the headings of the contents as follows:

Mathematics. Materials—Miscellaneous, Strength of, Alloys, Ropes and Chains, Springs, Riveted Joints, Iron and Steel, Steel. Mechanics—Elements of Machines, Stresses in Framed Structures. Heat. Physical Properties of Gases. Air—Flow of Air, Compressed Air, Fans and Blowers. Heating and Ventilation. Water—Hydraulics, Water Power, Turbine Wheels, Pumps, Hydraulic Pressure, Transmission. Fuel—Petroleum, Fuel Gas, Illuminating Gas. Steam—Flow of Steam, Steam Pipes. The Steam Boiler—Strength of Steam Boilers, Boiler Attachments, Furnaces, etc., Safety Valves, The Injector, Feed-Water Heaters, Steam Separators, Determination of Moisture in Steam, Chimneys. The Steam Engine—Compound Engines, Steam Engine Economy, Rotary Steam Engines, Dimensions of Parts of Engines, Fly-Wheels, The Slide Valve, Governors, Condensers, Air-Pumps, Circulating Pumps, etc. Gas, Petroleum and Hot-Air Engines. Hoisting—Cranes, Wire-Rope Haulage. Wire-Rope Transmission. Rope Driving. Friction and Lubrication—Lubrication. Dynamometers. Ice-Making or Refrigerating Machines—Actual Performances of Refrigerating Machines, Artificial Ice Manufacture. Marine Engineering—The Screw Propeller, The Paddle Wheel, Jet Propulsion, Recent Practice in Marine Engines. Construction of Buildings. Electrical Engineering—Standards of Measurement, Electrical Resistance, Electric Currents, Electric Transmission, Electric Railways, Electric Lighting, Electric Accumulators or Storage Batteries, Electro-Magnets, Dynamo-Electric Machines. 1,100 pages, 12mo., Morocco flap. $5.00.

Published by John Wiley & Sons, 53 East Tenth street, New York.

The twenty-seventh annual report of the Department of Marine and Fisheries, 1894, Ottawa, Canada. Appended is a report of the steamboat inspection service, chief engineer on hydrographic work, meteorology, signal and life-saving service and a resume of the lighthouse and coast service of the Dominion.

Consular Reports, Vol. 48, No. 176, containing commercial reports from a majority of the United States consuls stationed at the principal ports and cities of the world, issued by the Department of State, Washington, D. C.

PROPOSALS.

TREASURY DEPARTMENT, Washington, D. C., May, 27, 1895. Sealed proposals are hereby invited and will be received at this Department until 2 o'clock P. M., on Thursday, June 20th, 1895, at which time and place they will be opened in the presence of attending bidders, for the construction by contract of one steel steam propeller for the Revenue Cutter Service of the United States, for service on the Great Lakes, to be known while in course of construction or until launched, as "No. 1, R. C. S." The limit of the appropriation for the construction and completion of this vessel is $175,000, Said vessel is to be constructed in accordance with plans and specifications provided by the Secretary of the Treasury. Plans and specifications for the construction of said vessel may be seen and examined at this Department at any time after the 1st day of June 1895, and blue prints will be furnished to bidders upon application to this Department at any time after that date, and printed specifications a few days later. Instructions to bidders and contractors, forms of proposals and contract, bond and bondsmen's oath, may be obtained at any time after June 1st, 1895, on application to the Division of Revenue Cutter Service, Treasury Department, where all information essential to bidders can also be obtained. Proposals for construction of said vessel will be considered only from such ship-builders as can show to the satisfaction of the Secretary of the Tressury that they are possessed of the necessary plant and facilities for the performance of the work. Evidence as to this ability must be submitted to the Department at time of filing the proposal or not later than 2 P. M., June 20th, 1895. Each proposal must include the construction of both the vessel and her machinery, complete in all respects as required by the plans and specifications. The said vessel must be completed and delivered at some Port on Lake Michigan that may be designated by the Secretary of the Treasury on or before July 1, 1896, and bidders are informed that because of the urgent need of speedy delivery of said ship, the element of time to be consumed in the construction of said vessel will be given due consideration in determining the award of the contract. Each proposal must be accompanied with a cash deposit or certified check payable to the order of the Secretary of the Treasury in the sum of $5,000.00, which shall become the property of the United States, in case the successful bidder shall fail to enter into the requisite contract and furnish the requisite security on the acceptance of his proposal. Bids must be addressed to the Secretary of the Treasury, and be endorsed on the envelope "Proposal for building a steam revenue vessel for the Great Lakes." The right is reserved to reject any or all bids, and to waive defects if deemed for the interests of the Government so to do. S. WIKE, Acting Secretary.

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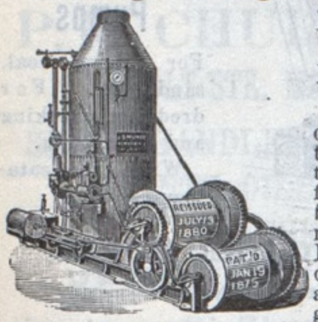

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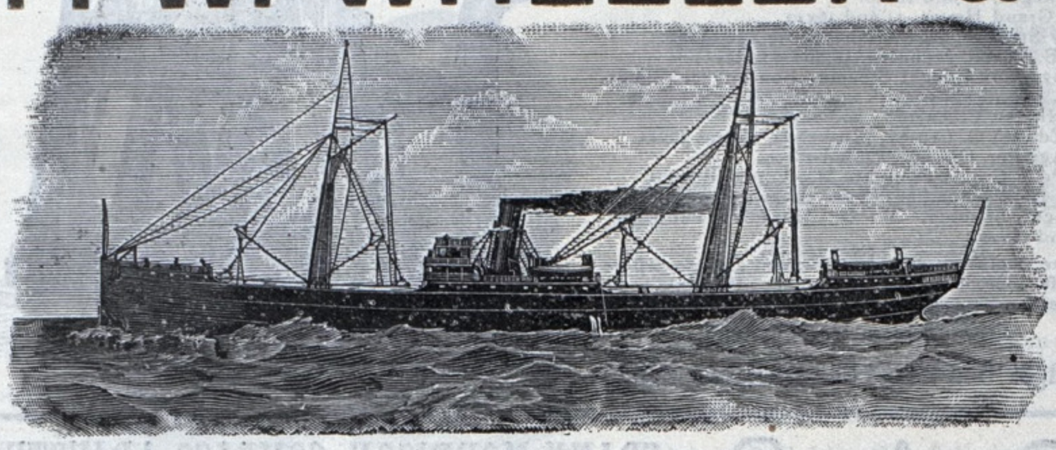

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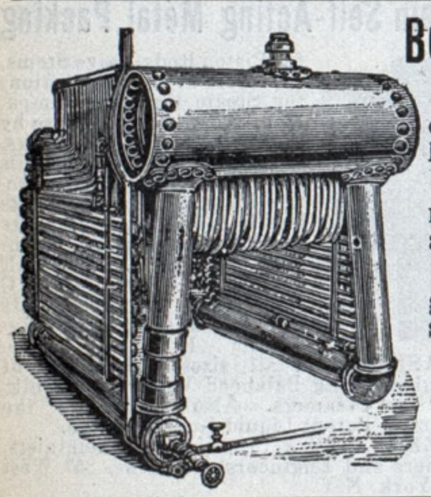
J. D. JONES, Prest. W. H. H. MOORE, Vice-Prest. A. A. RAVEN, 2nd Vice-Prest. J. H. CHAPMAN, Secy.

Boyer's Patent Sectional Water Tube Boilers



These rapid Steaming Boilers require less room, occupy less space in width, height and length; weigh less than any other.

Have short, perfect circulation, no dead ends, no joints in the fire, and any engineer can get at all parts of it.

The Steam Yacht "Rex," having 25 square feet grate surface and 1000 square feet heating surface, steamed 144 miles on 1000 lbs. of coal.

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Marine Iron Works,

Clybourn & Southport Aves.,

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BUILDERS OF

STEAM YACHTS,
MARINE ENGINES,
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MARINE VALVE OIL FOR INTERNAL LUBRICATION. RENOWN ENGINE OIL FOR EXTERNAL LUBRICATION.

Marine Valve, Renown Engine, Eldorado Engine, Crank Case, Victor Signal, Dark Lubricating, Mineral Seal, Head Light, Arctic Cup Greases, and Lard Oils,

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Detroit, Mich., 46 Jefferson.
Toledo, O., Summit & Monroe Sts.

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D. Robeson, Port Huron, Mich.
W. S. McKinnon, Ashtabula Harbor, O.
Hull & Rand, Huron, O.
Edward Brammall, Benton Harbor, Mich.
Baby & Dale, St. Clair, Mich.
N. C. Alten, Lorain, O.
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ABRAM SMITH & SON,

SHIP-BUILDERS,

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Wooden Ships of any description built, rebuilt, or repaired.

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Goods slips for laying up boats.

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Vessels Docked and Repaired at Reasonable Rates.

By the Spring Schedule effective May 19th on the Nickel Plate Road, an effort has been made to give a better and more convenient service to our patrons. The schedule time of through trains has been shortened and local points have been affected advantageously.

WEST BOUND.

Fast Express No. 5, which left New York at 6 p. m. and Boston at 3 p. m. the day previous, leaves Buffalo at 6:35 a. m. and arrives at Chicago at 9 p. m., passing Erie and Cleveland during the forenoon, Bellevue at noon and Ft. Wayne at 4 o'clock. Western Express No. 1, with through sleeping cars, which left New York and Boston the evening previous, leaves Buffalo shortly after noon daily, and arrives in Cleveland at 7 p. m., taking passengers into Chicago at 7:25 a. m.

The Chicago Mail, which departs from Cleveland week days at 6:00 a. m., makes local stops to Chicago, where it arrives at 7:00 p. m., in convenient time for evening entertainments.

EAST BOUND.

No. 6 leaves Chicago 1:30 p. m. daily, arriving at Fort Wayne 6:20 p. m., Cleveland 11:36 p. m., Buffalo 6:00 a. m., New York 6:30 p. m., Boston 9:00 p. m. next day.

No. 2 leaves Chicago 9:20 p. m. daily, arriving at Cleveland 9:53, Buffalo 4:55 p. m., New York 7,50 a. m., Boston 10:20 next morning. Cleveland Mail leaves Chicago 8:05 a. m. (daily except Sunday), reaches Knox at 11:00 a. m., Ft. Wayne 1:50 p. m., making intermediate stops, arriving at Cleveland 9:00 p. m.

253–22

ESTABLISHED 1871. INCORPORATED 1893.

MONTAGUE IRON WORKS CO.,

MANUFACTURERS OF

Marine and Stationary Engines

AND BOILERS OF ALL KINDS.

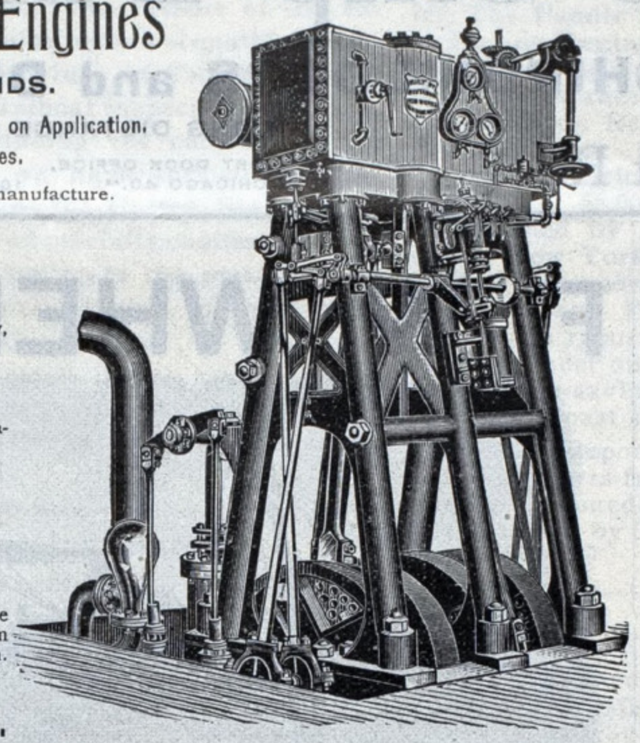
MONTAGUE, MICH.

Heavy Castings a Specialty. Prices Quoted on Application.

Fore and Aft Compound Marine Engines.

The Engines in the following boats are of our manufacture.

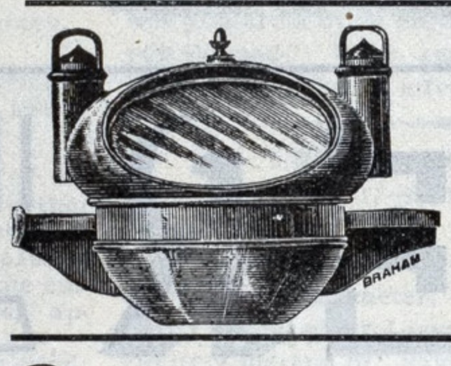
Edward Buckley, Manistee, 18 and 36x30.
Sachem, Grand Haven, 21 and 38x36.
Charles A. Street, Chicago, 20 and 36x36.
Isabella J. Boyce, Michigan City, 19 and 32x26.
M. T. Greene, Chicago, 20 and 36x36.
Passenger and Freight Steamer, Mabel Bradshaw, Muskegon, 16 and 28x26.
Ionia, Grand Haven, 24 and 46x42.
Survey Steamer, W. S. Hancock, 12 and 21x20.
Mark B. Covell, Manistee, 18 and 30x26.
Passenger and Frieght Steamer, Bon Voyage, Saugatuck, 16 and 30x26.
Tug, Hunter, Chicago, 15 and 28x22.
Tug, Edward G. Crosby, Muskegon, 16 and 30x24.
Oval Agitator, Chicago, 14 and 28x20.
Tug, Peter Coates, Sault Ste Marie, 10 and 20x16.
Luella H. Worthington, Cedar River, 19 and 36x30.
Passenger Steamer, E. G. Maxwell, Pentwate 14 and 28x20.



The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them all sizes and guarantee them to give satisfaction.

Prices furnished on application.

Montague Iron Works Co., Montague, Mich.



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—AND MANUFACTURER OF—

NAUTICAL INSTRUMENTS.

COMPASSES. BAROMETERS, PATENT LOGS, BINNACLES, STEAM GAUGES, MARINE GLASSES, ENGINE INDICATORS.

All Nautical Instruments Carefully Repaired.

Office with Upson, Walton & Co., 161 River St., Cleveland, O.

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TUG SWAIN STATIONED AT MACKINAW CITY.
TUG CRUSADER STATIONED AT THE "SOO."
TUG CHAMPION STATIONED AT DETROIT.

ALL WITH WRECKING OUTFITS ABOARD.

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Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

TUG MONARCH—Engine Compound, Cylinder 16 & 30 in. diameter, 30 in. Stroke, Steam Pressure allowed, 125 lbs.

TUG DELTA—Cylinder 20 by 22, Steam Pressure allowed, 105 lbs.

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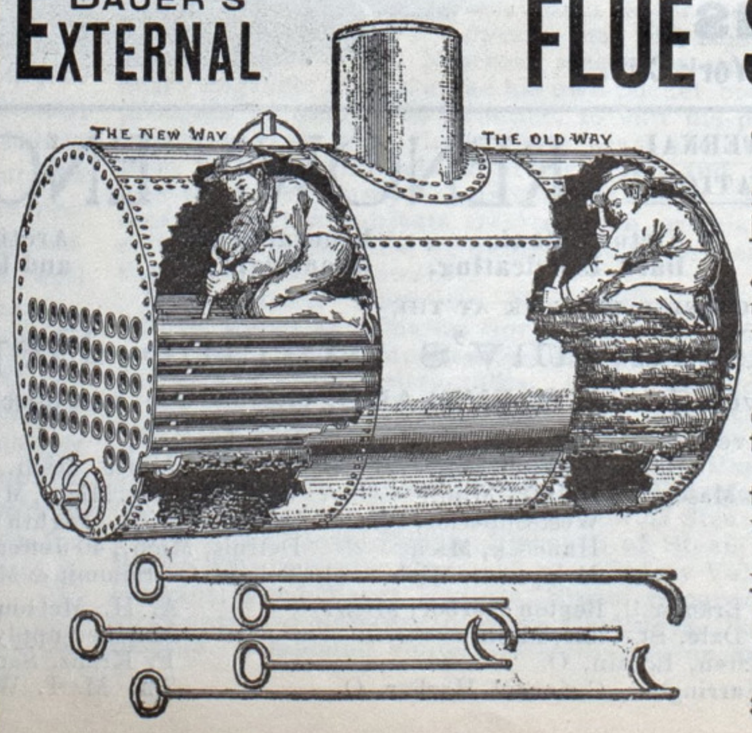
CENTRIFUGAL PUMPS. SEVEN AND FOURTEEN INCH SUCTION.

BAUER'S EXTERNAL FLUE SCRAPERS.



THE only device that will effectually **remove Scale** and **Sediment** from Flues **without injury** to flues or boiler.

Made of tool steel, hardened, concaved and ground, producing two sharp edges, and can be worked either way.

A Set will last about 10 years.

Used in **more than 90 different cities** and give **universal satisfaction.**

A **Shell Scraper** and a **patented inside flue cleaner** given with each set.

Send **outside diameter** of your flues for a trial set.

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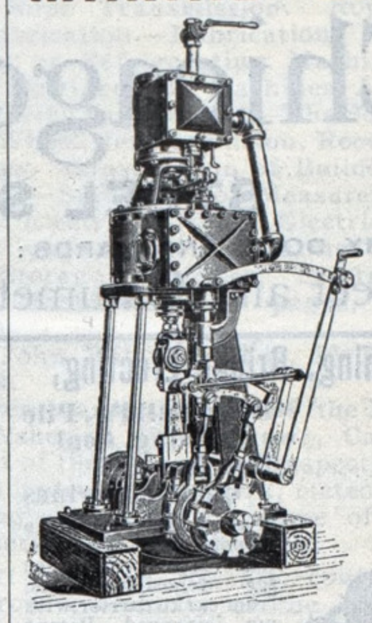

SINGLE AND COMPOUND.

5 TO 200 HORSE-POWER. These engines are high-class in workmanship and material and moderate in price.

Send for cuts, description and prices.

Centrifugal Pumps

For raising coal, sand, &c. For dredging, wrecking and circulating.

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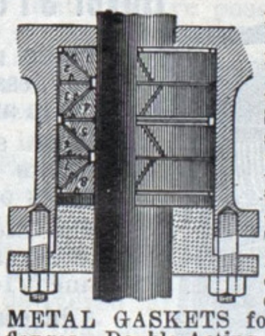
Mfrs. Yacht, Boat and Canoe Hardware.
Special Work a Specialty.
Boat Rails, Stanchions, Etc.

MENTION THIS PAPER.

Commencing Sunday May 19th, the day coaches on all through trains of the Nickel Plate Road will be attended by a colored porter whose services are placed at the disposal of the patrons of the line. The purpose of this equipment is to insure scrupulously clean cars enroute. 254–26

Katzenstein Self-Acting Metal Packing



for Piston Rods, Valve Stems, Etc., of every description, for Steam Engines, Pumps, Etc. Adopted and in use by the principal Iron Works, Steamship Companies, Mills and Engine Builders, Electric Light and Power Plants within the last twelve years in this and foreign Countries. Also FLEXIBLE TUBULAR METALLIC PACKING for Slip-Joints on Steam Pipes and for Hydraulic Pressure. Also METAL GASKETS for all sizes and shapes of flanges. Double-Acting Balanced Water-tight Bulkhead Doors for Steamers. Also Agents for the McColl-Cumming Patent Liquid Rudder Brake.

L. KATZENSTEIN & CO., General Machinists, Brass Finishers and Engineers' Supplies, 357 West Street, New York, N.Y.

The Pennsylvania Brass Works,

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Automatic Piston or Mocking Bird Whistles. Special Whistles made to order. Penna. Steam Flue Cleaner. Water Gages, Penna. Gage Cocks, Air Cocks, Oil Cups, Brass and Bronze Castings a Specialty.

Excursion Rates

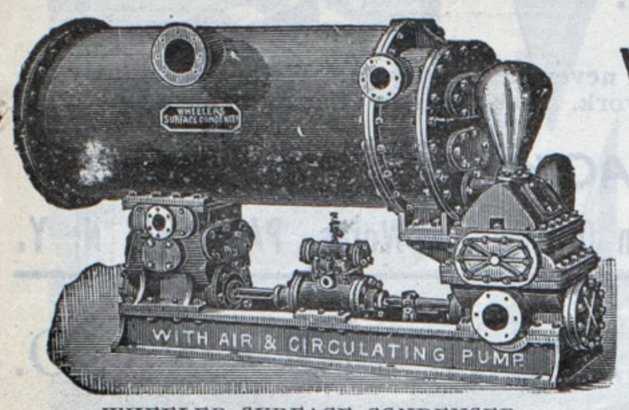
West, Northwest and Southwest. Agents of the Nickel Plate Road are authorized to sell Homeseekers' Excursion tickets May 21st and June 11th. An unexcelled dining car service and palatial sleepers on through trains between Chicago, Buffalo, New York and Boston. 246

Wheeler Condenser & Engineering Co.,

39 & 41 CORTLANDT STREET, NEW YORK.

WHEELER'S IMPROVED SURFACE CONDENSERS

Mounted upon Combined Air and Circulating Pumps.



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Mounted on Combined Air and Circulating Pumps.

Sole Proprietors and Manufacturers of the
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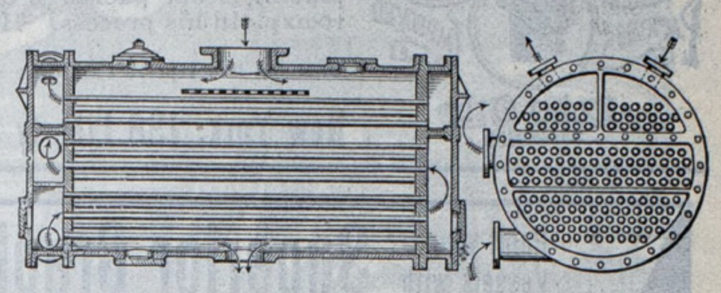
VOLZ PATENT COMBINED SURFACE CONDENSER AND FEED-WATER HEATER.
WHEELER FEED-WATER HEATER, AIR AND CIRCULATING PUMPS.
EDMISTON PATENT FEED WATER FILTER.

Send for Pamphlet, "Machinery for Small Boats, etc."



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STEAM FITTING and HEATING,

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GENERAL JOBBING WORK DONE PROMPTLY.

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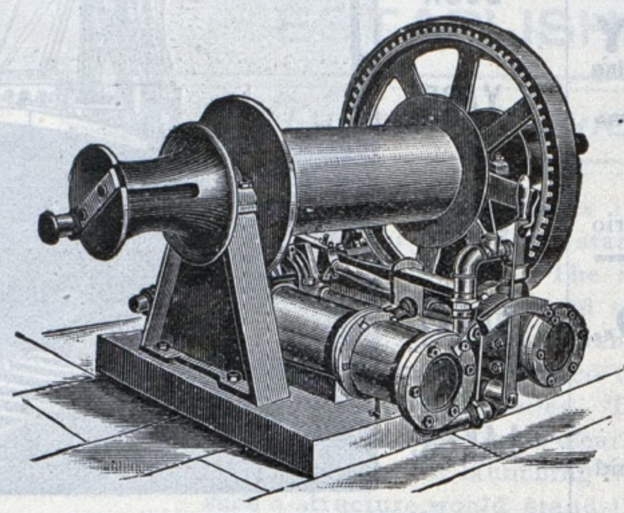
PROPOSALS.

TREASURY DEPARTMENT, OFFICE OF GENERAL SUPERINTENDENT U. S. LIFE-SAVING SERVICE, Washington, D. C., May 4, 1895. Sealed proposals will be received at this office until 2 o'clock p. m. of Friday, the 31st day of May, 1895, for furnishing supplies required for use of the Life-Saving Service for the fiscal year ending June 30, 1896; the supplies to be delivered at such points in New York City, Grand Haven, Mich., and San Francisco, Cal., as may be required, and in the quantities named in the specifications. The supplies needed consist of Beds and Bedding; Blocks and Sheaves; Cordage; Crockery; Furniture; Hardware; Lamps; Lanterns, etc.; Lumber; Medicines, etc.; Paints, Oils, etc.; Shipchandlery; Stoves, etc.; Tools, and Miscellaneous articles; all of which are enumerated in the specifications attached to the form of bid, etc., which may be obtained upon application to this office, or to the Inspector of Life-Saving Stations, 24 State street, New York City; Superintendent Eleventh Life-Saving District, Grand Haven. Mich.; and Superintendent Twelfth Life-Saving District, Appraisers New Building, San Francisco, Cal. Envelopes containing proposals to be addressed to the "General Superintendent U. S. Life-Saving Service, Washington, D. C.," and marked on the outside "Proposal for Annual Supplies." The right is reserved to reject any or all bids, and to waive defects, if deemed for the interests of the Government. S. I. KIMBALL, General Superintendent. 19-21

T. R. TEARE. M. THOMAS.

RIVER MACHINE & BOILER WORKS



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MARINE AND STATIONARY ENGINES, BOILERS, AND DECK HOISTING ENGINES.

Starting, Stopping, Reversing and Lowering all done by working one Lever.

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CLEVELAND, O.

POWELL'S COMPRESSION GREASE CUP.

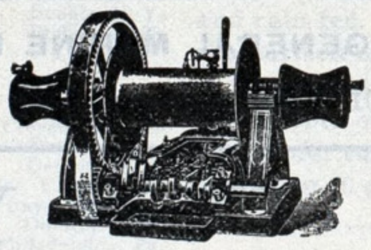
FOR FEEDING SOLID OIL OR GREASE.

NICKEL PLATED AND BRASS FOR ENGINES.

ALL IRON FOR SHAFTING, CLUTCHES &c.

IT WILL PAY YOU TO SEND FOR DESCRIPTIVE CIRCULAR.

THE WM. POWELL CO. CINCINNATI, O.



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BUILDER OF DUPLEX HOISTING AND DECK ENGINES.

Plain Finished and Automatic **ENGINES,** From Heavy Patterns at Moderate Prices.

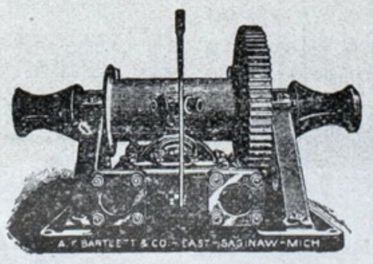
Vertical, Horizontal, Marine and Locomotive **BOILERS** Strictly First-Class and Highest Test.

SEND FOR CIRCULAR AND PRICES. SAGINAW, MICH.

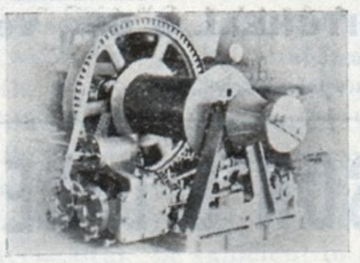
BARTLETT DECK HOIST.

In use on the ollowing vessels: Steamers—Roumania, Bulgaria, Germanic, Brittanic, George G. Hadley, S. S. Wilhelm, Majestic, Alex. Nimick, John Harper, Walter Vail, Panther, City of Berlin, City of Paris, City of Glasgow, City of London. Schooners—Tokio, Asiatic, Baltic, Celtic, Aberdeen, William D. Becker. Stopping, Starting, Reversing and Lowering, all done by working one lever.

A. F. BARTLETT & CO., - East Saginaw, Mich.



DECK AND DOCK HOISTS



Our Hoists will be found on the following boats: Tugs—Sumner, Sweepstakes, Winslow, J. K. Emmett, Acme, Mockingbird, Waldo Avery, Reliance, John Owen, Charlton, Howard, Duncan City, Chamberlain, Balize, Sampson, Westover, Gladiator, W. B. Castile, Home Rule, Robert Weideman, Boscobel and Peter Smith; Propellers—J. J. McWilliams, I. W. Stephenson, John W. Pauly; Barges—Jenness, Noquebay, Manta ee. Also in use by F. W. Wheeler & Co., W. B. City, Mich., Blood and Hart, Marine City, Mich., Michigan Salt Works, Marine City, Doty Bros., Pile Drivers, Toronto, Canada.

MARINE IRON CO., - - Bay City, Mich.

PROPOSALS.

U. S. ENGINEER OFFICE, 349 Carondelet St., New Orleans, La., May 6, 1895. Sealed proposals for coffer-dam, excavation and piling foundation for lock at Plaquemine, La., will be received here until 12 o'clock noon, June 6, 1895, and then publicly opened. Information furnished on application. JAMES B. QUINN, Major, Engineers. 19-22

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., May 8, 1895. Sealed proposals for furnishing all labor, materials and appliances, and removing material from Movable Dam and from 800-ft. Lock Approaches, also for constructing piers for Lock Approaches, will be received here until 2 p. m., June 7, 1895, and then pubiicly opened. All information furnished on application. O. M. POE, Col., Engineers. 19-22

TO IRON MANUFACTURERS. Office of U. S. Light-House Engineer, Ninth District, Detroit, Mich., May 21, 1895. Sealed proposals will be received at this office until 3 p. m. of Monday, the 10th day of June, 1895, for furnishing the material and labor of all kinds necessary for the construction, erection and delivery of the iron tower at Calumet Pierhead, Ill. Plans, specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any defects. M. B. ADAMS, Major, Corps of Engineers, U. S. A., Light-House Engineer. 22

TO BUILDERS. Office of Light-House Engineer, Tenth District, Cleveland, O., May 27, 1895. Proposals will be received at this office until 12 o'clock noon, of Thursday, the 13th day of June, 1895, for furnishing the materials and labor of all kinds necessary for the construction of crib and stone foundations for front and rear beacons of Sandusky Bay Range Light Station, Ohio. Plans, specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any defects. JARED A. SMITH, Lieut. Col. Corps of Engineers, U. S. A., Engineer 10th Light-House District. 22-23

TREASURY DEPARTMENT, U. S. LIFE-SAVING SERVICE, Washington, D. C., May 16, 1895. Sealed proposals will be received at this office until two o'clock p. m., of Tuesday, June 4, 1895, for the construction of twelve 34-foot self-righting and self-bailing lifeboats, with centerboard, six to be delivered in New York City and six in Grand Haven, Michigan. Proposals for either or both lots of boats will be considered. Plans and specifications, together with forms of proposal and full information, can be obtained upon application to this office; to the Inspector of Life-Saving Stations, 24 State Street, New York City; Assistant Inspector 1st and 2d Life-Saving Districts, Room 148, Postoffice Building, Boston, Mass.; Assistant Inspector 9th and 10th Life-Saving Districts, Custom House, Detroit, Michigan; or to the Collector of Customs at Cleveland, Ohio, Philadelphia, Pa., or Baltimore, Md. S. I. KIMBALL, General Superintendent. 21

CRANDALL'S PATENT PACKINGS.

FOR STEAM, WATER AND AMMONIA.

Not having been subjected to the injurious chemical action of boiling oil, outlast all others, and never melt and gum. We are constantly displacing other packings on Lake and Ocean Steamers, and can guarantee our goods for marine work. Ask the man offering "the same thing" to explain his process. He boils his goods in oil.

Send for Descriptive Catalogue and Samples.

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New York, 136 Liberty Street. Chicago, 51 S. Canal Street. Main Offices and Works, PALMYRA, N. Y.

Paint your Vessels with **Superior Graphite Paint**

NO BLISTERING, CRACKING OR SCALING.

Made especially for Stacks, Decks, Sides, Hulls and Water Compartments.
Strictly anti-rust, and most durable and economical.

DETROIT GRAPHITE MFG. CO. 542 River St., Detroit, Mich.

THE CUDDY-MULLEN COAL COMPANY

DEALERS IN COAL. Docks at Government Pier, Whiskey Island, and Adjoining Globe Dry Dock.

All fully equipped with Revolving Derricks; also, Lighter Carrying Derrick, and One Hundred Two and One-Half Ton Buckets.

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Boats Coaled Day and Night. Docks at Amherstburg and Sandwich, Ontario

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MULLEN-GATFIELD COAL CO.,

Dealers in the Celebrated

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Docks at SANDWICH, ONTARIO, opposite the Fort at Detroit, with chutes for rapid fueling. Elevated docks and derrick at AMHERSTBURG, ONTARIO.

O. W. SHIPMAN DOCKS.

AMHERSTBURG, ONT.

Four Chutes and Low Dock.

Massillon and **KOAL** Youghiogheny Hocking . . .

Main Office, 90 Griswold St., DETROIT.

The "CINCINNATI" Automatic
STEAM STEERING GEAR

Simple, Powerful Machine. Noiseless and Sure. Send for Circular.

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AMERICAN STEEL BARGE CO.

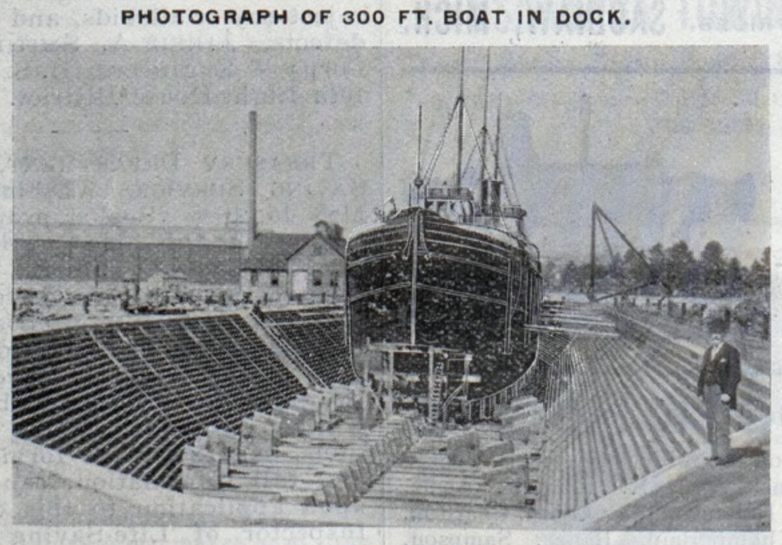
STEEL AND METAL SHIPS

OF ALL CLASSES BUILT ON SHORTEST POSSIBLE NOTICE AT OUR YARDS AT

WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300 FT. BOAT IN DOCK.

Plates and Material Always on Hand to Repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK

Length, Extreme	537 feet.	Entrance, Top,	55 feet 9 in.
Breadth, Top,	90 " 4 in.	Entrance, Bottom	50 "
Breadth, Bottom	52 "	Depth over Sills	18 "

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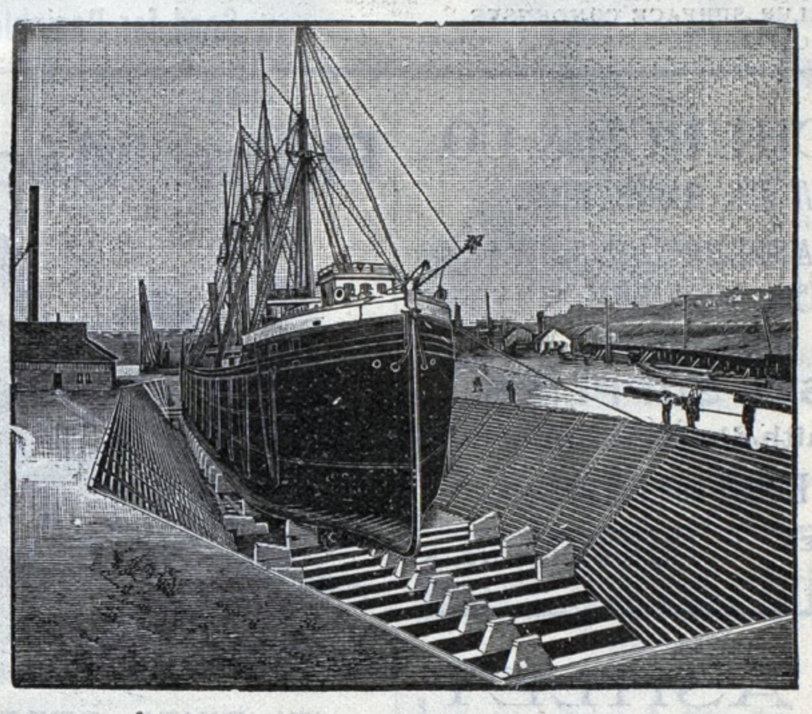

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